Course descriptions

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COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-515/00	**Course title:** 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:
 Grading: homework, semester exams, activity in the class.
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:
 Students are able to solve various problems required to pass the course Linear algebra and geometry (1).

Class syllabus:
 See the syllabus of the subject Linear algebra and geometry (1).

Recommended literature:
 Linear algebra and its applications / Gilbert Strang. Belmont : Thomson Brooks/Cole, 2006
 Algebra a teoretická aritmetika 1 / Tibor Katriňák ... [et al.]. Bratislava : Univerzita Komenského, 1999

Languages necessary to complete the course:
 Slovak, English

Notes:

Past grade distribution
 Total number of evaluated students: 688

A	B	C	D	E	FX
41,57	13,95	18,31	15,41	5,23	5,52

Lecturers: Mgr. Petra Macková, Mgr. Radoslav Hurtiš

Last change: 22.01.2021

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-525/00	**Course title:** 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:
 Grading: homework, semester exams, activity in the class.
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:
 Students are able to solve various problems required to pass the course Linear algebra and geometry (2).

Class syllabus:
 See the programme of the subject Linear algebra and geometry (2).

Recommended literature:
 Linear algebra and its applications / Gilbert Strang. Belmont : Thomson Brooks/Cole, 2006
 Algebra a teoretická aritmetika 1 / Tibor Katriňák ... [et al.]. Bratislava : Univerzita Komenského, 1995

Languages necessary to complete the course:
 Slovak, English

Notes:

Past grade distribution
 Total number of evaluated students: 608

A	B	C	D	E	FX
52,47	19,24	15,79	7,57	2,47	2,47

Lecturers: Mgr. Petra Macková, Mgr. Radoslav Hurtiš

Last change: 22.01.2021

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-911/15	**Course title:** BSc Thesis 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: 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:
: The student is informed about the basic regulations and requirements for content and formal aspects of bachelor thesis, citation technique and ethics. He/she has a thought-out structure of his bachelor thesis and a pre-established list of used literature.

Class syllabus:
Meetings with potential supervisors of bachelor theses and selection of bachelor thesis topic. Basic requirements for content and formal aspects of the bachelor thesis. Thesis objective. Structure of work. Citation technique and ethics. Methods of creating a bibliography.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 198

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

Lecturers: doc. RNDr. Margaréta Halická, CSc.

Last change: 09.10.2017

Approved by:

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-EFM-991/15	**Course title:** Bachelor Thesis and its Defense
Number of credits: 9	
Educational level: I.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by:	

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/1-AIN-407/15	**Course title:** 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., 3., 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: 133

A	B	C	D	E	FX
48,87	19,55	13,53	9,77	1,5	6,77

Lecturers: RNDr. Barbora Cimrová, PhD.

Last change: 22.09.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/1-AIN-408/15	**Course title:** 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: 1., 3., 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 38

A	B	C	D	E	FX
71,05	15,79	5,26	2,63	0,0	5,26

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 22.09.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-340/13	**Course title:** 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: 5.

Educational level: I., II.

Prerequisites: FMFI.KAMŠ/1-MAT-282/00 - Probability and Statistics (2) and leboFMFI.KAMŠ/2-INF-175/18 - Probability and Statistics and leboFMFI.KAMŠ/2-INF-175/15 - Probability and Statistics

Course requirements:

Learning outcomes:

Class syllabus:
History of R and comparison with other systems. Arithmetic, logical operators. Data import and visualisation, descriptive statistics. Tests of normality. Tests about location parameters, probabilities and correlation coefficients. Linear regression: estimates, tests, confidence regions, submodels, diagnostic. ANOVA. Modern methods of statistics (cluster and discriminant analysis, Monte Carlo).

Recommended literature:
Základy matematické statistiky / Jiří Anděl. Praha : Matfyzpress, 2005
An Introduction to R (available online: cran.r-project.org/doc/manuals/R-intro.pdf)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 340

A	B	C	D	E	FX
55,59	12,94	10,59	10,0	6,76	4,12

Lecturers: Mgr. Ján Somorčík, PhD.

Last change: 12.10.2016

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-240/15	**Course title:** Corporate Finance

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-MAT-281/00 - Probability and Statistics (1)

Course requirements:

Learning outcomes:
Upon completion of the course students will understand the principles of investment and financial decision making of a corporation.

Class syllabus:
Introduction to the theory of Corporate Finance. Financial analysis of a company. Time value of money, interest. Pricing of stocks and bonds. Investment criteria, sensitivity analysis, decision trees. Yield and risk. Portfolio Theory, Capital Asset Pricing Model (CAPM). Capital Structure. Tax Shield. Financial hardship and bankruptcy. Dividend policy.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 161

A	B	C	D	E	FX
31,06	21,74	14,29	15,53	14,91	2,48

Lecturers: RNDr. Zuzana Chladná, Dr.

Last change: 09.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-556/15	**Course title:** DEA 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: 3

Recommended semester: 4.

Educational level: I.

Prerequisites: FMFI.KMANM/1-EFM-220/00 - Linear Programming and leboFMFI.KMANM/1-MMN-255/00 - Linear Programming

Course requirements:

Learning outcomes:
 Upon completion of the course students will understand the fundamentals of DEA models and will be able to use them for evaluating the effectiveness of units within a given group.

Class syllabus:
 Introduction to DEA modelling, different approaches to DEA modeling, efficiency and effectiveness, CCR model, BCC model, range efficiency, additive model, basic model properties, model invariance, monotonous efficiency, input / output additions, returns to scale, superefektivity, rules for correct application of DEA models, SBM model, AR model.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 186

A	B	C	D	E	FX
43,55	27,42	18,82	8,06	0,0	2,15

Lecturers: doc. RNDr. Margaréta Halická, CSc.

Last change: 09.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-EFM-310/00	**Course title:** Difference and Differential Equations

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

Number of credits: 5

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-EFM-210/00 - Mathematical Analysis (3),(FMFI.KAG/1-MAT-160/15 - Linear Algebra and Geometry (2) and leboFMFI.KAG/1-EFM-160/12 - Linear Algebra and Geometry (2))

Course requirements:
Continuous assessment: Written exam and homework Exam: Written and oral exam Approximate rating: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 20/80

Learning outcomes:
Students master basic methods of modelling the dynamical processes with discrete and continuous time variable using differential and differential equations, with special regard to their application in economics and finance.

Class syllabus:
Difference equations: One- and higher dimensional linear equation, affine and nonlinear equation, solving and stability. Differential equations: One-dimensional linear, afinne and nonlinear equations. Higher dimesnional linear equations. General theory of differential equations. Autonomous equations, two-dimensional autonomous equations. Integrals of differential equations, conservative system with one degree of freedom.

Recommended literature:
P. Brunovský: Dynamické systémy a diferenciálne rovnice, text MFFUK www.iam.fmph.uniba.sk/skripta/brunovsky M. Greguš, V. Šeda, M. Švec: Obyčajné diferenciálne rovnice, Alfa 1985 J. T. Sandefur: Discrete dynamical systems. Clarendon 1990 G. Gandolfo: Economic Dynamics, Springer

Languages necessary to complete the course:
English

Notes:

Past grade distribution					
Total number of evaluated students: 563					
A	B	C	D	E	FX
29,84	25,22	17,58	16,7	9,41	1,24

Lecturers: doc. RNDr. Peter Guba, PhD., doc. Mgr. Pavol Bokes, PhD.

Last change: 01.05.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-380/00	**Course title:** Econometrics

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., II.

Prerequisites: FMFI.KAMŠ/1-EFM-330/00 - Statistical Methods and leboFMFI.KAMŠ/2-MMN-106/15 - Computer Statistics and leboFMFI.KAMŠ/2-PMS-107/15 - Regression Models and leboFMFI.KAMŠ/1-DAV-201/20 - Fundamentals of Probability and Statistics and leboFMFI.KAMŠ/1-PMA-510/00 - Basics of Mathematical Statistics

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

Learning outcomes:

Class syllabus:
 General framework of model building in the applications. Classical linear regression model. Methods of parameter estimation and their properties. Ordinary Least Squares method and theory. Regression diagnostics. Stochastic specification and classical assumptions of the linear regression model. Inference in the linear regression model. Violating assumptions in the classical linear regression model, detection and correction: heteroskedasticity and autocorrelation. Generalized least squares method. Multikollinearity. Stochastic regressors, autoregression. Instrumental variables method. Introduction to simultaneous equations. Qualitative variables, logistic regression. Overview of other methods.

Recommended literature:
 Faraway, J. J., Linear models with R, Chapman&Hall/CRC, 2005.
 Johnston, J. and DiNardo, J., Econometric methods, McGraw&Hill, 4-th. ed, 1997.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 1090

A	B	C	D	E	FX
27,52	15,14	18,72	17,16	17,98	3,49

Lecturers: Mgr. Ján Somorčík, PhD., Mgr. Samuel Rosa, PhD.

Last change: 12.10.2016

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-120/17	**Course title:** 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: 305

A	B	C	D	E	FX
12,79	22,62	17,05	24,59	10,82	12,13

Lecturers: doc. RNDr. Ján Boďa, CSc.

Last change:

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-140/17	**Course title:** 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: 148

A	B	C	D	E	FX
12,16	29,05	27,03	20,27	10,14	1,35

Lecturers: doc. RNDr. Ján Boďa, CSc.

Last change:

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-233/13	**Course title:** 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: 193

A	B	C	D	E	FX
65,28	13,99	7,25	2,07	1,55	9,84

Lecturers: PhDr. Elena Klátiková, Mgr. Aneta Barnes

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-234/13	**Course title:** 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: 118

A	B	C	D	E	FX
73,73	15,25	4,24	0,85	0,0	5,93

Lecturers: PhDr. Elena Klátiková, Mgr. Aneta Barnes

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-131/00	**Course title:** 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: 5497

A	B	C	D	E	FX
30,25	23,85	18,66	12,68	7,57	6,99

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

Last change: 22.02.2019
Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-132/00	**Course title:** 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: 1550

A	B	C	D	E	FX
22,26	20,52	24,45	15,68	10,65	6,45

Lecturers: PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Mgr. Ľubomíra Koželhubová, Mgr. Eva Foltánová, Mgr. Aneta Barnes

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-231/00	**Course title:** 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: 1283

A	B	C	D	E	FX
16,29	19,33	22,92	18,08	17,69	5,69

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KJP/1-MXX-232/10	**Course title:** 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: 2833

A	B	C	D	E	FX
28,45	28,49	21,07	10,87	5,65	5,47

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-570/00	**Course title:** Experimental Economics

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:
 1. Competitive Markets (Supply and Demand. Shifting Supply.)
 2. Market Intervention and Public Policy (A Sales Tax. Prohibition. A Minimum Wage.)
 3. Imperfect Markets (Externalities. Monopolies and Cartels.)
 4. Firms a technology (Entry and Exit. Network Externalities. Measuring Productivity. Comparative Advantage.)
 5. Information, Auctions, Bargaining (Adverse Selection. Auctions. Bargaining.)

Recommended literature:
 Theodore Bergstrom - John H. Miller: Experiments with Economic Principles: Microeconomics, McGraw-Hill, 2000.

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 100

A	B	C	D	E	FX
98,0	0,0	2,0	0,0	0,0	0,0

Lecturers: doc. RNDr. Ján Pekár, PhD.

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-370/00	**Course title:** Financial Mathematics

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-EFM-250/00 - Mathematical Analysis (4) and
leboFMFI.KAMŠ/1-DAV-102/20 - Calculus (1)

Course requirements:

Learning outcomes:

Class syllabus:
 Coupon and zero-coupon bonds, term structure of interest rates, bootstrap method, yield to maturity, forward rates, duration.
 Binomial tree model, risk-neutral probabilities, risk-neutral valuation formula, Black-Scholes formula, pricing of american options.
 Aversion to risk, properties of utility functions, utility functions and mean-variance analysis, the problem of Markowitz, Capital Asset Pricing Model (CAMP), factor models.

Recommended literature:
 Baxter M., Rennie A.: Financial Calculus
 Hull J.: Options, Futures and Other Derivatives
 Luenberger D.: Investment Science

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 581

A	B	C	D	E	FX
58,0	22,38	10,15	6,02	3,1	0,34

Lecturers: doc. Mgr. Igor Melicherčík, PhD.

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-552/17	**Course title:** Financial System and Financial Stability

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

Number of credits: 2

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-EFM-280/00 - Money and Banking

Recommended prerequisites:
 1-EFM-280/00 Money and Banking

Course requirements:
 Interim evaluation: Active participation / presentation
 Concluding evaluation: Written exam
 Approximate rating scale: A 90%, B 80%, C 70%, D 60%, E 50%
 Scale of assessment (preliminary/final): 60/40

Learning outcomes:
 Student controls the main principles of the international financial system, imbalances affecting financial stability and tools to mitigate systemic risk

Class syllabus:
 Money, the ECB's monetary system and policy, Balance of payments, Risks - Slovak and global context, Financial cycle, Financial crisis, Financial stability, Macro-prudential policy.

Recommended literature:
 Jílek, J. [2013] Finance v globální ekonomice. Grada, 2013

Languages necessary to complete the course:
 Slovak

Notes:

Past grade distribution
 Total number of evaluated students: 24

A	B	C	D	E	FX
50,0	29,17	12,5	4,17	0,0	4,17

Lecturers: PhDr. Štefan Rychtárik, PhD.

Last change: 15.05.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-561/14	Course title: Free optimisation methods

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

Number of credits: 3

Recommended semester: 4.

Educational level: I.

Prerequisites: (FMFI.KAG/1-EFM-160/12 - Linear Algebra and Geometry (2) and leboFMFI.KAG/1-DAV-104/20 - Linear Algebra),(FMFI.KAMŠ/1-EFM-130/00 - Mathematical Analysis (2) and leboFMFI.KAMŠ/1-DAV-102/20 - Calculus (1))

Course requirements: Project, exam test Grading:: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 40/60

Learning outcomes: Students have mastered classical and modern methods of free optimization for functions of one and several variables, theoretical and practical aspects of these methods and their significance for solving nonlinear programming problems with boundaries.

Class syllabus: Introduction to the subject, Classification of optimization problems, Lagrange function and its generalization, transformation of optimization problems, Methods of minimizing the function of one variable (Minimum interval approximation methods, Minimum point approximation methods), Classical methods for minimizing n-variable function (Classification of methods and basic algorithmic schemes, Cauchy's method of the highest gradient and relaxation method, Newton's method and modified Newton's method), Modern methods for minimizing the function of n variables (Conjugate gradient method, Quasi Newton method, Broyden class and other parametric classes of Quasi Newton formulas)

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 209

A	B	C	D	E	FX
19,14	13,88	19,14	22,49	19,62	5,74

Lecturers: doc. RNDr. Mária Trnovská, PhD.

Last change: 18.05.2018
Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-141/00	**Course title:** 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: 421

A	B	C	D	E	FX
45,13	20,43	19,48	9,03	1,9	4,04

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-142/00	**Course title:** 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: 259

A	B	C	D	E	FX
38,22	25,87	20,08	10,42	2,7	2,7

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-241/00	**Course title:** 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: 101

A	B	C	D	E	FX
37,62	28,71	21,78	6,93	0,99	3,96

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-242/00	**Course title:** 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: 71

A	B	C	D	E	FX
39,44	33,8	18,31	2,82	1,41	4,23

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-EFM-553/18	**Course title:** Fundamentals of Insurance Theory

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: 6

Recommended semester: 5.

Educational level: I.

Prerequisites:

Recommended prerequisites:
 Prerequisites: 1-EFM- 240/15 Corporate Finance
 Antirequisites: 2-EFM- 201/15 Insurance Theory, 2-EFM- 217/11 Insurance Theory Classes

Course requirements:
 Preliminary semester evaluation: Written exam.
 Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%.
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:
 After completing the course, the student will master basic methods of life and non-life insurance. He or she will be able to solve typical insurance problems, e.g. premium calculation, reserving and actuarial estimation.

Class syllabus:
 General principles of insurance and their properties. Property and liability insurance. Collective risk model. Estimation of the number and size of claims. Deductible, excess and franchise. Reinsurance; proportional and non-proportional forms of reinsurance; quota share reinsurance, surplus reinsurance, excess-of-loss reinsurance, stop-loss reinsurance. Bonus-malus schemes and No-Claim Discount (NCD) systems. Credibility theory. American and Bayesian approach - various models. Estimation of technical provisions in non-life insurance, run-off triangles: chain-ladder method, separation method and other methods.
 General principles of life insurance. Deterministic approach. Equation of value. Pure endowment, assurances (whole life, term, deferred, increasing), endowment, annuities (whole life, term, deferred, increasing). Stochastic approach, force of mortality, future lifetime and expected future lifetime, mortality models. Net and gross premiums. 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:
 Life Insurance Mathematics / Hans U. Gerber. Berlin, Heidelberg : Springer, 1997
 Modern Actuarial Risk Theory – Using R / Rob Kaas et al. Berlin, Heidelberg : Springer, 2009
 Modely v životnom a neživotnom poistení / Rastislav Potocký. Bratislava : Statis, 2012

Poistná matematika / Viera Sekerová, Mária Bilíková. Bratislava : Ekonóm, 2007
Aplikovaná poistná štatistika / Viera Pacáková. Bratislava : Iura Edition, 2004

Languages necessary to complete the course:
Slovak, English

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. Gábor Szűcs, PhD., doc. RNDr. Rastislav Potocký, PhD.

Last change: 24.07.2020

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-151/00	**Course title:** 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: 717

A	B	C	D	E	FX
35,43	27,62	19,8	9,21	2,79	5,16

Lecturers: Mgr. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-152/00	**Course title:** 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: 468

A	B	C	D	E	FX
35,47	20,51	20,73	13,46	3,42	6,41

Lecturers: Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-251/00	**Course title:** 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: 158

A	B	C	D	E	FX
39,24	26,58	21,52	6,96	2,53	3,16

Lecturers: Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-252/00	**Course title:** 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: 85

A	B	C	D	E	FX
40,0	25,88	12,94	11,76	3,53	5,88

Lecturers: Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/1-MXX-491/15	**Course title:** 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: 39

A	B	C	D	E	FX
87,18	10,26	0,0	0,0	0,0	2,56

Lecturers: PaedDr. Elena Mendelová, CSc.

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-270/15	**Course title:** Introduction to Game 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: 2

Recommended semester: 4.

Educational level: I.

Prerequisites:

Course requirements:
 Homework, midterm test, final test, experiments.
 Grade policy A 90%, B 80%, C 70%, D 60%, E 50%
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:
 Students will be able to analyze correctly strategic situations, being able to make the right decisions

Class syllabus:
 Strategic games with complete information. Dominance. Nash equilibrium. Applications (Cournot oligopoly, Bertrand oligopoly, voting games, deterrence wars, auctions). Nash equilibrium in mixed actions.
 Extensive games with complete information. Associated game. Nash equilibrium, subgame perfect equilibrium.

Recommended literature:
 A Course in Game Theory / Martin J. Osborne, Ariel Rubinstein. Cambridge, Mass. : MIT Press, 1994

Languages necessary to complete the course:
 Slovak, English

Notes:

Past grade distribution
 Total number of evaluated students: 188

A	B	C	D	E	FX
42,55	28,72	19,68	5,85	1,6	1,6

Lecturers: doc. RNDr. Ján Pekár, PhD.

Last change: 15.05.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-511/15	Course title: Introduction to University-level 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: 3

Recommended semester: 1.

Educational level: I.

Prerequisites:

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

Learning outcomes:

Class syllabus: mathematical statements and proofs, divisibility, greatest common divisor, the Euclidean algorithm, linear diophantine equations, congruences, linear congruences, system of linear congruences, the Chinese remainder theorem, Wilsons theorem, Fermats little theorem, Eulers phi function and theorem, cryptology and RSA cryptosystem, congruence classes, madular arithmetic, equivalence relations, complex numbers and their properties, complex plane, polar form of complex numbers, powers and roots of complex numbers, sets of points in the complex plane

Recommended literature: T. Koshy Elementary number theory with applications 2nd ed, Elsevier, 2007, P.J. Eccles An introduction to mathematical reasoning, Cambridge University Pres, 2007, D.G. Zill, P.D. Shanahan Comlex analysis, Jones and Bartlett Publishers, 2003

Languages necessary to complete the course: Slovak

Notes:

Past grade distribution Total number of evaluated students: 176

A	B	C	D	E	FX
36,36	21,59	23,3	18,18	0,57	0,0

Lecturers: RNDr. Dušan Krajčovič, CSc.

Last change: 16.05.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-512/15	**Course title:** Introduction to University-level 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: 3

Recommended semester: 2.

Educational level: I.

Prerequisites:

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

Learning outcomes:

Class syllabus:
 permutations, permutation group, abstract groups, subgroups, left and right cosets, Lagranges theorem, cyclic groups, normal subgroups, quotient groups, homomorphism and izomorphism, the fundamental homomorphism theorem, rings, ideals, quotient rings, fields, polynomials, Horners scheme, roots of polynomials with real and rational coefficients, symmetric polynomials, resultant and discriminant, cubic equations, Cardanos formula, canonical equation of ellipse, hyperbola and parabola, transformation of a coordinate system, curves of the second order, classification of the curves of the second order, surfaces of the second order, classification of the surfaces of the second order

Recommended literature:
 . Hill, Ch. Thorn Elementary abstract algebra Examples and applications, Portions, 2016,
 E. B. Vinberg A course in algebra, AMS 2003,
 R. A. Sharipov Course in analytical geometry text book UFA 2011,

Languages necessary to complete the course:
 slovak

Notes:

Past grade distribution
 Total number of evaluated students: 110

A	B	C	D	E	FX
60,91	20,0	13,64	4,55	0,91	0,0

Lecturers: RNDr. Dušan Krajčovič, CSc.

Last change: 16.05.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAI/1-AIN-406/15	**Course title:** 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: 2., 4., 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: 95

A	B	C	D	E	FX
28,42	27,37	20,0	14,74	3,16	6,32

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 22.09.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-PMA-710/15	**Course title:** 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.

Educational level: I.

Prerequisites:

Course requirements:
 Preliminary semester evaluation: Written exam.
 Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%.
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:
 After completing the course student will master the basic concepts of insurance and the legislation regulating insurance in Slovakia. The student will know the basic accounting principles.

Class syllabus:
 Basic concepts in insurance. Origin and development of insurance in the world. The current insurance market in Slovakia and the European Union.
 Acts (in their current and complete wording) regulating the insurance industry: Act on Insurance, Compulsory Contractual Motor Vehicle Third Party Liability Insurance, Act on Health Insurance, Act on Social Insurance, Act on the old-age pension scheme, Act on Supplementary Pension Saving. Solvency II.
 The concept of the Balance Sheet, dual aspect concept, assets and liabilities, Profit and Loss Statement, Annual Report.
 Concepts of synthetic and analytical accounting. Principles of budgeting. Accounting documentation.

Recommended literature:

Languages necessary to complete the course:
 slovak, english

Notes:

Past grade distribution
 Total number of evaluated students: 157

A	B	C	D	E	FX
40,76	16,56	13,38	14,01	5,1	10,19

Lecturers: Mgr. Gábor Szűcs, PhD.

Last change: 06.02.2021
Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAG/1-EFM-121/15	Course title: 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:
Upon completion of this course, students will master basic computational skills of linear algebra: solving linear systems, determining linear dependence / independence, determining spatial dimension, finding orthogonal complement, projection and projection matrix, finding a matrix of a linear mapping, calculating matrix determinants, determining whether a mapping is linear, finding the kernel and the image of a mapping.
Students will improve their skills in proving propositions and deducing the properties of mathematical objects and advance their argumentation in the language and the style of university mathematics.

Class syllabus:
Systems of linear equations and their geometry, Gaussian elimination, matrix representation, vectors, matrix operations, inverse matrix, vector spaces, linear dependence / independence, base, dimension, matrix rank, linear transformation, kernel, image, scalar product, orthogonality, projection, orthogonal complement, Gram-Schmidt orthogonalization, matrix determinant, Laplace's expantion, Cramer's rule, determinant as volume, permutations.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 247

A	B	C	D	E	FX
4,45	10,93	14,98	22,27	31,58	15,79

Lecturers: Mgr. Martin Niepel, PhD., Mgr. Petra Macková, Mgr. Radoslav Hurtiš

Last change: 27.02.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAG/1-EFM-160/12	**Course title:** Linear Algebra and Geometry (2)

Educational activities: **Type of activities:** lecture / practicals **Number of hours:**   **per week:** 3 / 2 **per level/semester:** 42 / 28 **Form of the course:** on-site learning

Number of credits: 7

Recommended semester: 2.

Educational level: I.

Prerequisites:

Recommended prerequisites: Linear Algebra and Geometry I. (1-EFM-121) or equivalent course.

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

Learning outcomes: Upon completion of this course students will master the more advanced computational skills of linear algebra: finding eigenvalues and eigenvectors of a matrix, diagonalization of a matrix and finding its exponential, finding the minimum polynomial of a matrix, the generalized eigenvectors, deciding whether two matrices are similar, finding the Jordan canonical form, quadratic forms, describing a conic corresponding to a quadratic form. Students will improve their skills in proving propositions and deducing the properties of mathematical objects and advance their argumentation in the language and the style of university mathematics.

Class syllabus: Eigenvectors, eigenvalues, characteristic polynomial, applications of matrix diagonalization to difference and differential equations, Schur's lemma, minimal polynomial, Jordan Form, quadratic forms, Sylvester's criterion, Sylvester's law of inertia, conics.

Recommended literature: G. Strang: Linear Algebra and its Applications, Brooks/Cole, 1988 S. Axler: Linear Algebra Done Right, UTM, Springer, 1997 P. Zlatoš: Lineárna algebra a geometria, Marenčin PT, Bratislava, 2011 L. Motl, M. Záhradník: Pěstujeme lineární algebru, Karolinum, Praha, 1997

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 340					
A	B	C	D	E	FX
10,0	16,76	24,12	22,06	20,88	6,18

Lecturers: Mgr. Martin Niepel, PhD., Mgr. Petra Macková, Mgr. Radoslav Hurtiš

Last change: 15.01.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KMANM/1-EFM-220/00	**Course title:** Linear Programming

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

Number of credits: 5

Recommended semester: 3.

Educational level: I.

Prerequisites: (FMFI.KAG/1-MAT-160/15 - Linear Algebra and Geometry (2) and leboFMFI.KAG/1-EFM-160/12 - Linear Algebra and Geometry (2) and leboFMFI.KAG/1-DAV-104/20 - Linear Algebra),(FMFI.KAMŠ/1-EFM-130/00 - Mathematical Analysis (2) and leboFMFI.KAMŠ/1-DAV-102/20 - Calculus (1))

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

Learning outcomes:

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

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

Languages necessary to complete the course:

Notes:

Past grade distribution
  Total number of evaluated students: 608

A	B	C	D	E	FX
16,78	21,05	24,34	20,72	16,45	0,66

Lecturers: doc. RNDr. Mária Trnovská, PhD.

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-390/00	**Course title:** Macroeconomics

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-EFM-140/17 - Economics (2)

Course requirements:
Examination: Final test: A 88%, B 78%, C 68%, D 58%, E 48%
Scale of assessment (preliminary/final): 0/100

Learning outcomes:
Students will understand the current macroeconomic theory in relation to its use in the real policy of central banks and governments.

Class syllabus:
Aggregated demand, aggregate supply, business cycles. Inflation, unemployment, monetary policy of the central bank. Labor markets and policies of the economic side. Monetary policy of the central bank. Government fiscal policy. Theory of private consumption and investment. Money and financial markets. Open economy in the short term. Inflation and Unemployment in an Open Economy. Shocks and responses of the government and the central bank.

Recommended literature:
O. Blanchard. S. Fischer: Lectures on Macroeconomics
D. Romer: Advanced Macroeconomics

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 542

A	B	C	D	E	FX
27,68	23,25	25,83	16,42	6,64	0,18

Lecturers: doc. RNDr. Ján Boďa, CSc.

Last change: 16.10.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-110/00	Course title: 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: 521

A	B	C	D	E	FX
20,35	22,84	26,68	15,74	4,99	9,4

| **Lecturers:** Mgr. Martin Kollár, PhD., RNDr. Ľubica Kossaczká, CSc. |
| **Last change:** 02.06.2015 |
| **Approved by:** |

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-130/00	**Course title:** 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:

Course requirements:

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: 449

A	B	C	D	E	FX
29,18	26,95	19,38	15,14	5,35	4,01

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

Last change: 02.06.2015

Approved by: _____

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-210/00	Course title: 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),FMFI.KAMŠ/1-EFM-130/00 - Mathematical Analysis (2)) and lebo(FMFI.KMANM/1-MAT-110/00 - Mathematical Analysis (1),FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2))), (FMFI.KAG/1-EFM-160/12 - Linear Algebra and Geometry (2) and leboFMFI.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: 680

A	B	C	D	E	FX
29,26	30,15	25,88	9,41	4,56	0,74

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

Last change: 09.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-250/00	Course title: 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) and leboFMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)),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: 673

A	B	C	D	E	FX
38,48	31,95	16,05	8,77	3,71	1,04

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

Last change: 09.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-510/00	**Course title:** 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:

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 a 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: 719

A	B	C	D	E	FX
51,88	21,0	12,24	6,95	5,84	2,09

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

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-520/00	**Course title:** 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:

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: 655

A	B	C	D	E	FX
59,39	14,96	10,99	8,09	5,8	0,76

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

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-530/00	**Course title:** 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: 675

A	B	C	D	E	FX
45,78	21,93	18,52	7,41	6,22	0,15

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

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-540/00	**Course title:** 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: 663

A	B	C	D	E	FX
54,3	20,21	12,97	8,14	4,07	0,3

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

Last change: 02.06.2015

Approved by:

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-EFM-961/15	**Course title:** Mathematical Methods
Number of credits: 2	
Educational level: I.	
State exam syllabus:	
Last change: 06.02.2019	
Approved by:	

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-565/15	**Course title:** Mathematical Software

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: 3.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:
 Students gain fundamental skills of programming in Matlab and writing scientific texts in LaTeX.

Class syllabus:
 MATLAB: Introduction to the Matlab environment and programming language. Vectors, matrices and basic operations. Graphics in Matlab: 2-D graphics, 3-D graphics. Looping: for, while, if-else-end, switch-case. Scripts and functions. Local and global variables. Optimization in Matlab.
 LaTex: Visualization of Tex Files, Error Messages. Basic Structure of the Textual File, Commands and Environment, Organization of Different Types of Documents. Styles and font sizes, writing tables, footnotes. Mathematical formulas, creating simple images and inserting external images.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 189

A	B	C	D	E	FX
48,68	22,75	13,76	9,52	4,76	0,53

Lecturers: Mgr. Soňa Kilianová, PhD., Mgr. Jana Szolgayová, PhD.

Last change: 09.10.2017

Approved by:

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-EFM-951/15	**Course title:** Mathematics Fundamentals
Number of credits: 2	
Educational level: I.	
State exam syllabus:	
Last change: 06.02.2019	
Approved by:	

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-230/15	**Course title:** Matrix Calculus

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: 3.

Educational level: I.

Prerequisites:

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

Learning outcomes:

Class syllabus:
 Partitioned matrices, Schur complement, various matrix classes and their properties (positive semi-definite matrices, hermitian, unitary and orthogonal matrices, stochastic matrices, permutation matrices, tri-diagonal and circulant matrices, nilpotent and unipotent matrices, normal matrices etc.), matrix norms, Frobenius norm, vector norm induced matrix norms and their properties, singular value decomposition and other matrix decompositions, pseudo-inverse matrices and their properties.

Recommended literature:
 F. Zhang - Matrix theory, Springer Verlag New York, 1999
 C.D. Meyer Matrix analysis and applied linear algebra, SIAM, 2001,
 David C. Lay Linear algebra and its applications, Pearson Education, 2016,
 S.L. Campbell, Carl D. Meyer Generalised inverses of linear transformation, SIAM, 2009,
 W. Ford Numerical linear algebra with applications using MATLAB, Elsevier 2014

Languages necessary to complete the course:
 slovak, english

Notes:

Past grade distribution
 Total number of evaluated students: 185

A	B	C	D	E	FX
54,59	29,19	13,51	2,7	0,0	0,0

Lecturers: RNDr. Dušan Krajčovič, CSc.

Last change: 06.04.2021

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KAMŠ/1-EFM-350/00	**Course title:** Microeconomics

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-EFM-140/17 - Economics (2),FMFI.KAMŠ/1-EFM-250/00 - Mathematical Analysis (4),FMFI.KMANM/1-EFM-220/00 - Linear Programming

Course requirements:

Learning outcomes:

Class syllabus:
Theory of firm. Theory of customer. Perfect competition. Imperfect competition. General equilibrium. Uncertainty and risk. Asymetric information.

Recommended literature:
F. Turnovec: Úvod do mikroekonomickej teórie. Skriptá EU 1992
H. Varian: Intermediate miroeceonomics. Norton 1993 (český preklad Mikroekonomie, Victoria 1995
H. Varian: Microeconomic Analysis. Norton 1992
A. Mas-Collel, M. D. Whinston, J. R. Green: Microeconomic Theory. Oxford 1995

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 577

A	B	C	D	E	FX
15,42	17,5	20,8	20,28	22,53	3,47

Lecturers: RNDr. Zuzana Chladná, Dr.

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-280/00	**Course title:** Money and Banking

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: 3.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-EFM-120/17 - Economics (1)

Course requirements:

Learning outcomes:

Class syllabus:
 Money, interest rate, money demand, money supply, monetary policy, IS-LM model, AS-AD model and inflation, monetary policy in an open economy, commercial banking.

Recommended literature:
 Hubbard, R.G.: Money, the Financial System and the Economy, Addison-Wesley, 1999

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 656

A	B	C	D	E	FX
32,93	27,74	21,04	10,67	7,16	0,46

Lecturers: Mgr. Ing. Pavol Jurča, PhD.

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-320/15	**Course title:** Non-Linear Programming

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-EFM-561/14 - Free optimisation methods

Course requirements:

Learning outcomes:
 Student has mastered the basics of nonlinear programming theory and methods.

Class syllabus:
 Mathematical apparatus for bounded optimization problems (Saddle points and minimax theorem, General principle of duality in optimization problems, Convex functions, quasi-convex, pseudoconvex and heavy-convex functions), Necessary and sufficient conditions for optimality (Classical bounded optimization problem, Nonlinear programming prolem, Theory of duality of convex programming, Geometric programming as a consequence of convex programming duality theory, Quadratic programming, Introduction to internal point methods)

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 203

A	B	C	D	E	FX
13,3	14,29	17,73	20,69	32,02	1,97

Lecturers: doc. RNDr. Mária Trnovská, PhD.

Last change: 09.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-321/00	**Course title:** Non-Linear Programming Classes

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:
 Passing the tests
 Grading
 A 90%, B 80%, C 70%, D 60%, E 50%
 Scale of assessment (preliminary/final): 100/0

Learning outcomes:
 Students improve the knowledge required to pass the Nonlinear programming course.

Class syllabus:
 See the syllabus for the Nonlinear programming course.

Recommended literature:
 Nelineárne programovanie, teória a algoritmy / Milan Hamala, Mária Trnovská. Bratislava : EPOS, 2013

Languages necessary to complete the course:
 Slovak, English

Notes:

Past grade distribution
 Total number of evaluated students: 426

A	B	C	D	E	FX
60,33	16,2	10,33	6,57	5,63	0,94

Lecturers: doc. RNDr. Mária Trnovská, PhD., Mgr. Martin Hurban, PhD.

Last change: 17.05.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-360/14	**Course title:** Numerical Methods

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:

Course requirements:
 Continuous assessment: Written exam
 Exam: Exam
 Approximate Rating Rating: A 90%, B 80%, C 70%, D 60%, E 50%
 Scale of assessment (preliminary/final): 40/60

Learning outcomes:
 The student has basic numerical mathematical methods that are necessary for solving problems using current computers and available software.

Class syllabus:
 Representation of real numbers and computer arithmetic. Stability. Examples of instability: Recurrent relations and their use. Gronwall lemma. Evaluation of functions. Numerical methods for solving algebraic and transcendental equations. Numerical solution of systems of linear equations: Jacobi method, Gauss--Seidel method, Conjugate gradient method. Numerical solution of systems of nonlinear equations: Bisection method, Newton's method. Interpolation, optimal selection of interpolation nodes. Linear and cubic splines. The least squares method. Numerical differentiation and quadrature.

Recommended literature:
 Numerické metódy / J. Babušíková, M. Slodička, J. Weisz. Bratislava: Univerzita Komenského, 2000
 Numerical Methods Using Matlab / J. H. Mathews, K. K. Fink. Pearson, 2004

Languages necessary to complete the course:
 English

Notes:

Past grade distribution
 Total number of evaluated students: 240

A	B	C	D	E	FX
47,5	18,33	14,17	10,0	9,17	0,83

Lecturers: doc. RNDr. Peter Guba, PhD., Mgr. Martin Chudjak, PhD.
Last change: 01.05.2017
Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-110/00	**Course title:** 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: 5336

A	B	C	D	E	FX
96,03	1,65	0,09	0,0	0,06	2,17

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KTV/1-MXX-120/00	**Course title:** 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: 4404

A	B	C	D	E	FX
97,66	1,7	0,05	0,02	0,02	0,54

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-210/00	**Course title:** 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: 2683

A	B	C	D	E	FX
98,66	0,52	0,07	0,0	0,0	0,75

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-220/00	**Course title:** 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: 2370

A	B	C	D	E	FX
99,16	0,17	0,04	0,04	0,0	0,59

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-310/00	**Course title:** 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: 1775

A	B	C	D	E	FX
99,04	0,39	0,11	0,0	0,0	0,45

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KTV/1-MXX-320/00	Course title: 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: 1534

A	B	C	D	E	FX
99,15	0,26	0,13	0,0	0,0	0,46

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.VC/1-EFM-535/00	**Course title:** Principles of Accounting

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:

Class syllabus:
 Accounting as the language of business, introduction to financial statements, accounting process, accounting principles, detailed characterization of the main balance sheet accounts, cash flow statement, financial statement analysis.
 The course is based on the approach adopted in the international accounting standards IAS/IFRS

Recommended literature:
 Hervé Stolowy and Michel J. Lebas: Financial Accounting and Reporting. A global perspective
 Anna Šlosárová a kolektív: Analýza účtovnej závierky
 IASB Framework for the Preparation and Presentation of Financial Statements
 Zákon o účtovníctve č. 431/2002 Z.z. v znení neskorších predpisov

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 395

A	B	C	D	E	FX
80,51	11,65	5,32	1,52	0,76	0,25

Lecturers: doc. RNDr. Peter Mederly, CSc.

Last change: 26.06.2020

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-MAT-281/00	**Course title:** 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) and leboFMFI.KMANM/1-MMN-150/15 - Mathematical Analysis (2) and leboFMFI.KAMŠ/1-EFM-130/00 - Mathematical Analysis (2)),(FMFI.KAG/1-MAT-120/15 - Linear Algebra and Geometry (1) and leboFMFI.KAG/1-MMN-120/00 - Linear Algebra and Geometry (1) and leboFMFI.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: 1286					
A	B	C	D	E	FX
17,19	12,36	18,2	21,7	24,88	5,68

Lecturers: doc. RNDr. Katarína Janková, CSc., Mgr. Samuel Rosa, PhD., Mgr. Lívia Rosová, PhD., Mgr. Michaela Turošíková

Last change: 28.04.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-MAT-282/00	Course title: 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: 1194					
A	B	C	D	E	FX
18,59	10,22	15,16	21,19	28,39	6,45

Lecturers: doc. RNDr. Katarína Janková, CSc., Mgr. Jozef Kováč, PhD., Mgr. Lívia Rosová, PhD.

Last change: 28.04.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					

Course ID: FMFI.KAMŠ/1-PMA-754/16	**Course title:** 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: 208

A	B	C	D	E	FX
73,08	6,73	5,29	7,21	2,88	4,81

Lecturers: Mgr. Samuel Rosa, PhD., Mgr. Lívia Rosová, PhD., Mgr. Michaela Turošíková

Last change: 25.04.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-PMA-753/15	**Course title:** 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: 276

A	B	C	D	E	FX
75,72	9,06	5,43	5,07	1,45	3,26

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

Last change: 24.04.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KDMFI/1-MAT-130/14	**Course title:** 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: 646

A	B	C	D	E	FX
44,74	10,06	7,28	7,28	9,44	21,21

Lecturers: doc. RNDr. Ľubomír Salanci, PhD.

Last change: 25.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KDMFI/1-MAT-170/00	**Course title:** 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: 1705

A	B	C	D	E	FX
34,55	16,19	12,14	12,96	18,65	5,51

Lecturers: doc. RNDr. Ľubomír Salanci, PhD.

Last change: 25.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID: FMFI.KTV/1-UXX-340/00	Course title: 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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-161/00	**Course title:** 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: 685

A	B	C	D	E	FX
58,98	16,35	10,51	4,53	1,9	7,74

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-162/00	**Course title:** 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: 414

A	B	C	D	E	FX
65,94	15,22	8,7	3,86	0,97	5,31

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-261/00	**Course title:** 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: 197

A	B	C	D	E	FX
70,05	17,77	8,63	2,54	0,0	1,02

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-262/00	**Course title:** 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: 142

A	B	C	D	E	FX
75,35	13,38	7,04	2,82	0,7	0,7

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAI/2-IKVa-192/19	**Course title:** Science, Technology and Humanity: Opportunities and Risks

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

Number of credits: 5

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:
 Semestral evaluation: active participation
 Final evaluation: essay
 Weight of the final evaluation: 60%
 To achieve an A, 90% is needed, for B at least 80%, for C 70%, for D, 60% and for an E, at least 50% of overall assessment.

Learning outcomes:
 The students will gain awareness of the contemporary and potential future challenges posed by scientific and technological innovations and their impact on human behaviour, culture and society.

Class syllabus:
 Big data: privacy, politics and power,
 Internet of things, it usefulness and threats,
 Assistant AI and its place in future society,
 Job market and inequality,
 Enhancements and human rights and the right to change self and others,
 Initiatives for responsible research,
 Artificial minds,
 Hybridization between species and between AI and organic minds,
 Future of minds and trans-humanism,
 Artificial emotional intelligence,
 An after human era.

Recommended literature:
 - S. Russell: Human compatible. Artificial intelligence and the problem of control. Viking, 2019.
 - J. Havens: Heartificial intelligence. Embracing our humanity to maximize machines. Penguin, 2016.
 - P. Boddington: Towards a code of ethics for artificial intelligence. Springer, 2017.
 - M. Shanahan: The technological singularity. MIT Press, 2015.
 - C. MacKellar, C.: Cyborg Mind: What Brain–Computer and Mind–Cyberspace Interfaces Mean for Cyberneuroethics. Berghahn Books, 2019.

- G. Bel, J. Gemmell: Total Recall, How the e-Memory Revolution will change everything. Dutton, 2009.
- S. Zuboff: The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power. PublicAffairs, 2019.
- C. O'Neil: Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy. Crown Publishers, 2016.
- M. Tegmark: Life 3.0. Allen Lane, 2017.

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 25

A	B	C	D	E	FX
72,0	20,0	0,0	4,0	4,0	0,0

Lecturers: doc. RNDr. Martin Takáč, PhD., PhDr. Ing. Tomáš Gál, PhD.

Last change: 28.02.2020

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-235/15	**Course title:** Seminar in Matrix Calculus

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

Number of credits: 2

Recommended semester: 3.

Educational level: I.

Prerequisites:

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

Learning outcomes:

Class syllabus:
 practical applicationa and problems solving for vector p-norms, equivalent norms, norms in inner
 product spaces, parallelogram identity, matrix norms, Frobenius matrix norm, induced matrix norms
 and their properties, conditioning of a problem, matrix condition number, perturbation analysis
 for solving linear system, singular value decomposition, geometric interpretation, reduced SVD,
 least squares problem, normal system of linear equations, optimal pseudosolution, pseudoinverse
 matrices and their properties, computation of pseudoinverse matrixvia normal equations, via SVD,
 via skeleton decomposition of a matrix

Recommended literature:
 C.D. Meyer Matrix analysis and applied linear algebra, SIAM, 2001,
 David C. Lay Linear algebra and its applications, Pearson Education, 2016,
 S.L. Campbell, Carl D. Meyer Generalised inverses of linear transformation, SIAM, 2009,
 W. Ford Numerical linear algebra with applications using MATLAB, Elsevier 2014

Languages necessary to complete the course:
 Slovak

Notes:

Past grade distribution
 Total number of evaluated students: 185

A	B	C	D	E	FX
76,22	19,46	4,32	0,0	0,0	0,0

Lecturers: RNDr. Dušan Krajčovič, CSc.

Last change: 17.05.2018

Approved by: _____

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-PMA-752/14	**Course title:** 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) and leboFMFI.KAMŠ/1-DAV-201/20 - Fundamentals of Probability and Statistics

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: 56

A	B	C	D	E	FX
83,93	8,93	3,57	1,79	1,79	0,0

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

Last change: 17.05.2018

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-115/15	**Course title:** 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: 221

A	B	C	D	E	FX
99,55	0,0	0,45	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:

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					

Course ID: FMFI.KTV/1-MXX-215/15	**Course title:** 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: 153

A	B	C	D	E	FX
99,35	0,0	0,0	0,0	0,0	0,65

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-216/18	**Course title:** 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: 19

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KTV/1-MXX-217/18	**Course title:** 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: 5

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:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KAMŠ/1-EFM-330/00	**Course title:** Statistical Methods

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:
Students will be able to use the basic methods of mathematical statistics, and they will also understand their principles. They will also understand some of the more general statistical techniques that they will be able to apply in a specific situation and which will later be used in other statistics related subjects.

Class syllabus:
The properties of the sample mean and sample variance. T-tests and F-tests. Basic confidence intervals and Bonferroni method. How to create a test? How to measure test quality? Neyman-Pearson's lemma and UMP tests for compound hypotheses. How to measure the quality of the estimates? BLUE, BUE, Cramer-Rao inequality. Asymptotic properties of estimates and maximum likelihood method. Wald test and score test. Bootstrap and jackknife

Recommended literature:
Lamoš, Potocký: Pravdepodobnosť a matematická štatistika, Štatistické analýzy, VUK, Bratislava, 1998
Anděl: Matematická štatistika, SNTLI ALFA, Praha 1985

Languages necessary to complete the course:

Notes:

Past grade distribution
 Total number of evaluated students: 580

A	B	C	D	E	FX
41,9	15,86	15,0	12,07	12,59	2,59

Lecturers: Mgr. Ján Somorčík, PhD.

Last change: 09.10.2017

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-133/18	**Course title:** 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: 17

A	B	C	D	E	FX
52,94	35,29	5,88	0,0	5,88	0,0

Lecturers: Mgr. Ing. Jana Kočvarová

Last change:

Approved by:

COURSE DESCRIPTION

University: Comenius University in Bratislava	

Faculty: Faculty of Mathematics, Physics and Informatics	

Course ID: FMFI.KJP/1-MXX-134/18	**Course title:** 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: 22

A	B	C	D	E	FX
54,55	18,18	0,0	13,64	4,55	9,09

Lecturers: Mgr. Ing. Jana Kočvarová

Last change:

Approved by: