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COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/2-MXX-133/23	Artificial Intelligence for Everyone

Educational activities:
Type of activities: training session / course
Number of hours:
per week: 9 **per level/semester:** 1t / 117
Form of the course: on-site learning

Number of credits: 6

Recommended semester:

Educational level: I.II., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 22

A	B	C	D	E	FX
45,45	36,36	4,55	9,09	4,55	0,0

Lecturers: prof. Ing. Igor Farkaš, Dr.

Last change:

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAG/2-MMN-132/00	Computer Graphics (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
For the semester, the student can get 50% for exercises, 20% for midterm and the final written exam has a weight of 30%. The student must obtain at least half of the points for the exercises as well as for the project in order to pass the final written exam.
Grading: A (100-91), B (90-81), C (80-71), D (70-61), E (60-51), Fx (50-0).
Scale of assessment (preliminary/final): Weight of midterm / final assessment: Mid-term assessment 20% (midterm) / + 50% project 30% final exam.

Learning outcomes:
Students will gain knowledge about algorithmic solutions to basic visualization and computer graphics problems. They will acquire knowledge and skills in modeling and displaying graphic objects and static scenes.

Class syllabus:
graphics hardware, software and graphics formats
light and colors, visualization
basics of 2D graphics: rasterization, filling, intersections, clipping
introduction to image processing
homogeneous coordinates and geometric transformations in 2D and 3D
basics of 3D modeling
3D and 2D rendering
texturing, local lighting models and shading, basics of animation

Recommended literature:
Computer graphics and image processing (in Slovak) / Eugen Ruzický, Andrej Ferko. Bratislava : Sapientia, 1995.
Moderní počítačová grafika / Jiří Žára, Bedřich Beneš, Petr Felkel. Praha : Computer Press, 1998
Fundamentals of interactive computer graphics / James D. Foley, Andries van Dam. Reading : Addison-Wesley, 1983
Vlastné elektronické texty vyučujúceho predmetu zverejňované prostredníctvom web stránky predmetu.

Languages necessary to complete the course:
English, Slovak

Notes:
The class can be eventually taught in distant mode, as well.

Past grade distribution
Total number of evaluated students: 269

A	B	C	D	E	FX
39,41	28,62	21,93	7,06	1,12	1,86

Lecturers: doc. RNDr. Andrej Ferko, PhD., Mgr. Adriana Malovec Bosáková, PhD.

Last change: 22.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAG/2-MMN-133/00	Computer Graphics (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: II.

Prerequisites:

Course requirements:
For the semester, the student can get 50% for exercises, 20% for midterm and the final written exam has a weight of 30%. The student must obtain at least half of the points for the exercises as well as for the project in order to pass the final written exam.
Grading: A (100-91), B (90-81), C (80-71), D (70-61), E (60-51), Fx (50-0).
Scale of assessment (preliminary/final): Weight of midterm / final assessment: Mid-term assessment 20% (midterm) / + 50% project 30% final exam.

Learning outcomes:
Students will gain knowledge about algorithmic solutions of more advanced methods of modern computer graphics and Visual Computing. They will acquire an approach to the use of algorithms in terms of efficiency, time and memory requirements. They will acquire knowledge and skills in modeling and displaying graphic objects and static scenes.

Class syllabus:
curves and surfaces in computer graphics
human visual system, psychology of vision
visualization, creation of effective graphic presentations
optics, digital photography,
procedural modeling in 2D and 3D, fractals
advanced imaging methods (raytracing, radiation method)
display channel, OpenGL

Recommended literature:
Computer graphics and image processing (in Slovak) / Eugen Ružický, Andrej Ferko. Bratislava : Sapientia, 1995
Moderní počítačová grafika / Jiří Žára, Bedřich Beneš, Petr Felkel. Praha : Computer Press, 1998
Fundamentals of interactive computer graphics / James D. Foley, Andries van Dam. Reading : Addison-Wesley, 1983
Class materials available from the class web page.

Languages necessary to complete the course:

English, Slovak

Notes:
Eventually, the class is taught online, as well.

Past grade distribution
Total number of evaluated students: 133

A	B	C	D	E	FX
31,58	25,56	18,8	8,27	14,29	1,5

Lecturers: doc. RNDr. Andrej Ferko, PhD.

Last change: 22.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-MMN-106/15	Computer Statistics

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1.

Educational level: II.

Prerequisites:

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

Learning outcomes:
Graduates of the course will be able to use R software for basic statistical analysis. They will gain experience in working with real data and will be able to apply in practice the statistical methods from which they have become acquainted in theory in the past.

Class syllabus:
Basics of working with R - arithmetic, logical operators, cycles, working with graphics. Data import and visualization. Descriptive statistics. Confidence intervals and hypothesis testing (normality, equality of means / medians, correlation coefficients). Linear regression. Chi-square goodness of fit test.

Recommended literature:
Statistics / David Freedman; Robert Pisani; Roger Purves. New York : W.W. Norton & Company, cop, 2007

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 227

A	B	C	D	E	FX
15,42	21,15	22,03	25,11	14,98	1,32

Lecturers: Mgr. Jozef Kováč, PhD.

Last change: 10.03.2022
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KIS/2-MMN-236/12	Data Processing for Management and Marketing (Data Mining II)

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1., 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 33

A	ABS	B	C	D	E	FX	M
39,39	0,0	51,52	6,06	0,0	0,0	0,0	3,03

Lecturers: doc. Ing. Iveta Stankovičová, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-238/23	Data in digital marketing

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KMANM/2-MMN-238/19

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 48

A	B	C	D	E	FX
64,58	20,83	14,58	0,0	0,0	0,0

Lecturers: Mgr. Ján Laurenčík, Ing. Silvia Balejčíková

Last change: 05.09.2023

Approved by: prof. RNDr. Michal Fečkan, DrSc.

STATE EXAM DESCRIPTION

Academic year: 2026/2027	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KMANM/2-MMN-991/22	**Course title:** Diploma Thesis Defense
Number of credits: 20	
Educational level: II.	
Course requirements: Examination: state examination Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Thesis	
State exam syllabus:	
Last change: 16.03.2022	
Approved by: prof. RNDr. Michal Fečkan, DrSc.	

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-920/22	Diploma Thesis Seminar (1)

Educational activities:
Type of activities: seminar
Number of hours:
per week: 1 **per level/semester:** 13
Form of the course: on-site learning

Number of credits: 1

Recommended semester: 3.

Educational level: II.

Prerequisites:

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

Learning outcomes:
Continuous presentation of acquired knowledge and achieved results in the diploma thesis.

Class syllabus:
Graduates are required to develop a brief syllabus of their thesis together with the thesis supervisor. They will present the syllabus during the introductory speech at the seminar.

Recommended literature:
Currently valid directive of the Rector of Comenius University on the basic requirements for final theses
Písanie a obhajoba záverečných prác. Vysokoškolské skriptá pre študentov Univerzity Komenského v Bratislave: Lucia Lichnerová, vyd. Stimul 2016
Jak se vyhnout plagiátorství. Příručka pro studenty: kol. autorov. Univerzita Karlova, Nakladatelství Karolinum. 2020
Relevant literature on the topic of the thesis assigned by the thesis supervisor

Languages necessary to complete the course:
Slovak, English.

Notes:

Past grade distribution
Total number of evaluated students: 206

A	B	C	D	E	FX
93,69	2,91	1,94	0,49	0,97	0,0

Lecturers: prof. RNDr. Michal Fečkan, DrSc., doc. PhDr. Daniela Majerčáková, PhD., MBA, doc. RNDr. Zbyněk Kubáček, CSc.

Last change: 16.06.2022
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-921/00	Diploma Thesis Seminar (2)

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: II.

Prerequisites:

Course requirements:
Interim evaluation: elaboration of formal parts and requierments of the final thesis, elaboration of assigned tasks within seminars
Independent work - elaboration of the diploma thesis on the basis of recommendations and consultations with the supervisor
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
The student is able to process, finalize and submit the thesis prepared on the basis of current legislation, recommendations and relevant literature on the processed issues with strict adherence to the citation technique. Student will process the basic knowledge and results of the final thesis into a presentation for the state exam - the defense of the diploma thesis.

Class syllabus:
Formal requirements of the final thesis. Source citation technique and related possibilities of creation List of used literature or Bibliography. Formal adjustment of graphic elements of the work, control of necessary requiries. Elaboration of the Methodology, Methodical part of the thesis and connection of theoretical, methodical and practical knowledge in the diploma thesis. Presentation skills and expression training.

Recommended literature:
Písanie a obhajoba záverečných prác. Vysokoškolské skriptá pre študentov Univerzity Komenského v Bratislave: Lucia Lichnerová, vyd. Stimul 2016
Jak se vyhnout plagiátorství. Příručka pro studenty: kol. autorov. Univerzita Karlova, Nakladatelství Karolinum. 2020
Currently valid directive of the Rector of Comenius University on the basic requirements for final theses
The rules of Slovak orthography /or equivalent in language of the thesis
Relevant literature related to the topic of the thesis assigned by the supervisor

Languages necessary to complete the course:

English (or another foreign language according to the student's knowledge)

Notes:

Past grade distribution
Total number of evaluated students: 421

A	B	C	D	E	FX
84,56	9,03	4,28	1,19	0,71	0,24

Lecturers: doc. RNDr. Michal Demetrian, PhD., doc. PhDr. Daniela Majerčáková, PhD., MBA

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KIS/2-MMN-205/22	E-Business a E-Marketing

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 1., 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI-FM.KIS/2-MMN-205/00

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

Learning outcomes:

Class syllabus:
Technology-enabled business transformation, alignment of business and IT, approaches to strategy creation, SWOT analysis, senior management presentations. IT governance, risk management, reporting structure. Software economics, cost management, ROI, time to pay back, outsourcing, utility computing, business and IT metrics, balanced scorecards. Enterprise computing, middleware, business applications (ERP, SCM, CRM, CMS). Systems architecture, components, packages, reuse, open source. Systems integration, database federation, reliable messaging, web-services, SOA, ESB. Case studies based on small and large organisations use of e-business techniques and technology. Internet as a marketing tool. Application of marketing elements in Internet environment. Benefits of Internet for marketing. We are entering the Internet. Intensity of need to participate on Internet. Goals of firm's presence on Internet. Suitability of products. How to attain the set goals effectively? Value of a web page. Value. Value models of web pages. Choice of value model. Promotion on Internet. Basic terminology. Categories and trends of internet advertising. Carriers of internet ads. Introducing search systems. Banner advertising. Other forms of advertising on the Net. Advertising networks. Promotion OFF-LINE. One-to-One marketing. Process of one-to-one marketing. Personalization of internet pages. Benefits of personalization. Customer support. Case study: Promotion of web pages.

Recommended literature:
Fellenstein, C., Wood, R.: Exploring E-commerce, Global E-business, and E-societies, Prentice Hall PTR, 2000
Turban E., Leidner D., McLean E., Wetherbe J., Information Technology for Management: Transforming Organizations in the Digital Economy, 5th Edition, Wiley, New York 2006. ISBN: 978-0-471-70522-2

Knight P., Vysoce efektivní marketingový plán, Grada, Praha 2007, ISBN 978-80-247-1999-3

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 15

A	B	C	D	E	FX
33,33	40,0	6,67	6,67	13,33	0,0

Lecturers: prof. Mgr. Peter Štarchoň, PhD., Ing. Jaroslav Vojtechovský, PhD.

Last change: 24.01.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: I., II.

Prerequisites: FMFI.KAMŠ/1-EFM-330/00 - Statistical Methods or FMFI.KAMŠ/2-MMN-380/22 - Time Series Analysis or FMFI.KAMŠ/2-PMS-107/15 - Regression Models or FMFI.KAMŠ/1-DAV-303/20 - Statistical Methods

Recommended prerequisites:
Statistical methods 1-EFM-330 or Statistical methods 1-DAV-303 or Computer statistics 2-MMN-106

Course requirements:
Continuing evaluation: project (10%) and test (20%); at least 10% out of 30% are needed to proceed to the final exam
Exam: written exam
Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 30/70

Learning outcomes:
Students are able to perform standard linear regression analysis and also are able to apply it in real econometric research. They also understand the mathematics behind these methods, being a necessary condition for further studies in this subject.

Class syllabus:
Linear regression, the geometry behind it, and LS-estimators of parameters. Decomposition of the Total Sum of Squares, coefficients of determination, and the Akaike information criterion. Properties of the parameter estimators and of the error term variance estimator. Gauss-Markov theorem. Tests of linear hypotheses about parameters. Restricted regression. Model specification errors and their diagnostic. Dummy variables. Generalized least squares. Heteroscedasticity: testing for and dealing with. Autocorrelation: testing for and dealing with.

Recommended literature:
Johnston J, DiNardo J: Econometric methods 4th ed. McGraw Hill 1997;
Greene W: Econometric Analysis 8th ed. Pearson 2017;
Zvára K: Regrese. MatfyzPress, 2008.

Languages necessary to complete the course:

Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 1330

A	B	C	D	E	FX
28,87	16,17	17,97	16,99	16,77	3,23

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

Last change: 25.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-EFM-125/00	Economics of Information

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment four equivalent home-works.
Approximate rating scale: A 100-90%, B 89-80%, C 79-70%, D 69-60%, E 59-50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
The student will be able to decide in an asymmetric information environment. It will be able to analyze the relevant models and compose contracts in asymmetric information.

Class syllabus:
Classes of models with asymmetric information. Subjective risk with hidden action or hidden information. Adverse selection. Mechanism design and post-contractual hidden knowledge. Signalling and detection.

Recommended literature:
E. Rasmusen: Games and Information, An Introduction to Game Theory, 4th Edition. Blackwell Publishers, 2006
Mas-Collel, Whinston, Green: Microeconomic Analysis. Oxford University Press, 1995
Fudenberg , Tirole: Game Theory. MIT Press,1998

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 266

A	B	C	D	E	FX
99,25	0,0	0,0	0,0	0,0	0,75

Lecturers: doc. RNDr. Ján Pekár, PhD.

Last change: 15.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KEF/2-MMN-112/00	Economy Processes Modelling

Educational activities:
Type of activities: lecture / laboratory practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Recommended prerequisites:
Conversion of subjects: Statistics, Statistical methods, Managerial Statistics

Course requirements:
nedosiahne potrebný počet bodov na absolvovanie predmetu. Termíny budú celoročníkové a budú zverejnené v dostatočnom predstihu v AIS2.
Študent môže ísť na skúšku ak získa minimálne 60% bodov (tj. 24 bodov) z priebežného hodnotenia.
Skúšku spraví, ak získa minimálne 60 bodov za priebežné hodnotenie a hodnotenie zo skúšky.
Body, ktoré študent získa v priebehu semestra a na skúške sa započítavajú do výslednej známky z predmetu.
Váha priebežného / záverečného hodnotenia: 40/60
Scale of assessment (preliminary/final): 40/60

Learning outcomes:
Študenti sa oboznámia s princípmi modelovania a prognózovania časových radov v diskrétnom čase Oboznámia sa s ARMA metodológiou, s metódami pre modelovanie volatility časových radov ARCH and GARCH, so štylizovanými faktami. Nauučia sa používať sotvér R, ktorý sa praxi využíva pri analýze dát a štatistických výpočtoch.

Class syllabus:
1.Analýza časových radov: Úvod do analýzy časových radov,
2. Dekompozícia časového radu, deterministická a reziduálna zložka.
3.Box – Jenkisova metodológia. Postup, výhody a nevýhody.
4. Identifikácia modelu v Box – Jenkinsonovej metodológii, korelačná analýza a jej význam v BJ metodológii, informačné kriteria a ich význam v BJ metodológii.
5. Stacionárne modely časových radov. AR, MA a ARMA procesy. Stacionarita a invertibilita ARMA procesov. Metódy odhadu parametrov modelov. Jednotkové koreňové testy,
6. Overovanie správnosti modelov. Predpovede v časových radoch. Najlepší lineárny prediktor. Metóda maximálnej vierohodnosti, predpovedné schémy. Výber a vyhodnotenie najlepšej predpovede.

7. Nestacionárne časové rady.
8.Štylizované fakty na finančných trhoch.
9. ARCH model.
10. GARCH model.
11. Aplikácia ARCH a GARCH modelov prvá časť,
12. Aplikácia ARCH a GARCH modelov druh časť.
13. Zápočet
14. Zhrnutie a opakovanie. Oboznámenie sa s priebehom skúšky.

Recommended literature:

Kováč, U.: študijné materiály k predmetu dostupné online v MS Teams a alebo v Moodle predmetu
Hal R. Varian. Computational economics and finance : Modeling and analysis with mathematica. New York : Springer, 1996
Cipra, T.: Analýza časových řad s aplikacemi v ekonomii. Praha : Státní nakladatelství technické literatury, 1986
Komorník, J. - Komorníková, M. - Mikula, K.: Modelovanie ekonomických a finančných procesov. FM UK, Bratislava 1998.
Ritchken, P. : Options: Theory, Strategy and Applications. Scott, Foresman and Comp., USA 1987.

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 423

A	B	C	D	E	FX
50,35	26,0	16,78	4,96	1,89	0,0

Lecturers: doc. Ing. Mgr. Urban Kováč, PhD., doc. RNDr. Jana Kalická, PhD., doc. RNDr. Mária Bohdalová, PhD., Mgr. Dominika Sónak Ballová, Mgr. Peter Pšenák, PhD.

Last change: 16.02.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/2-MXX-130/21	Elements of AI

Educational activities:
Type of activities: independent work
Number of hours:
per week: 25 **per level/semester:** 325
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 7.

Educational level: I.II., II.

Prerequisites:

Course requirements:
Passing the online course https://course.elementsofai.com/ (in Enlish or Slovak version).

Learning outcomes:
The student will get acquainted with selected basic concepts of artificial intelligence and their use in solving various practical tasks.

Class syllabus:
1. What is artificial intelligence: related areas, AI philosophy.
2. Troubleshooting and UI: Browsing and troubleshooting, browsing and games
3. Probability and chance, Bayes' theorem, naive Bayesian classification.
4. Machine learning: nearest neighbor classifier, regression.
5. Neural networks: basics, creation, modern techniques.
6. Consequences: on predicting the future, the effects of AI on society, summary.

Recommended literature:
Russell S., Norwig P. (2010). Artificial Intelligence: A Modern Approach, (3rd ed.), Prentice Hall. Available in faculty library.
Marsland S. (2015). Machine Learning: An Algorithmic Perspective, (2nd ed.), CRC Press.

Languages necessary to complete the course:
Slovak or English

Notes:
The course consists of 20 numerical and 5 text-based tasks. Numerical tasks are checked automatically, text-based tasks are evaluated anonymously by students.

Past grade distribution
Total number of evaluated students: 95

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

Lecturers: doc. RNDr. Mária Markošová, PhD.

Last change: 22.08.2021
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/2-MXX-130/21	Elements of AI

Educational activities:
Type of activities: independent work
Number of hours:
per week: 25 **per level/semester:** 325
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 8.

Educational level: I.II., II.

Prerequisites:

Course requirements:
Passing the online course https://course.elementsofai.com/ (in Enlish or Slovak version).

Learning outcomes:
The student will get acquainted with selected basic concepts of artificial intelligence and their use in solving various practical tasks.

Class syllabus:
1. What is artificial intelligence: related areas, AI philosophy.
2. Troubleshooting and UI: Browsing and troubleshooting, browsing and games
3. Probability and chance, Bayes' theorem, naive Bayesian classification.
4. Machine learning: nearest neighbor classifier, regression.
5. Neural networks: basics, creation, modern techniques.
6. Consequences: on predicting the future, the effects of AI on society, summary.

Recommended literature:
Russell S., Norwig P. (2010). Artificial Intelligence: A Modern Approach, (3rd ed.), Prentice Hall. Available in faculty library.
Marsland S. (2015). Machine Learning: An Algorithmic Perspective, (2nd ed.), CRC Press.

Languages necessary to complete the course:
Slovak or English

Notes:
The course consists of 20 numerical and 5 text-based tasks. Numerical tasks are checked automatically, text-based tasks are evaluated anonymously by students.

Past grade distribution
Total number of evaluated students: 95

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

Lecturers: doc. RNDr. Mária Markošová, PhD., prof. Ing. Igor Farkaš, Dr., doc. RNDr. Martin Takáč, PhD.
Last change: 22.08.2021
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 3., 7., 9.

Educational level: I., I.II., II.

Prerequisites:

Course requirements:
tests, presentations, essays
Course prerequisites:
https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Continual improvement of all language skills focused on communication/speaking, listening comprehension and writing. The emphasis is on discourse, lexicology and morphology, word-bank broadening of communicational English as well as English for specific purposes appropriate for university students. This course is a follow up of the previously taught ESP course.

Class syllabus:
This course's focus is to broaden spoken/communicational English for students with B2/C1 level of English knowledge.

Recommended literature:
Appropriate study material is supplied based on the participants'level of English by the lecturer. (Sources- The Guardian, The Herald Morning Sun. The Nine News, The West Australian, BBC News and podcasts, CNN podcasts).

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 318

A	B	C	D	E	FX
77,36	8,81	4,4	1,26	0,94	7,23

Lecturers: Mgr. Aneta Barnes

Last change: 11.04.2024
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 4., 8., 10.

Educational level: I., I.II., II.

Prerequisites:

Course requirements:
tests, oral presentations, essays
Course prerequisites:
https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Continual improvement of all language skills focused on communication/speaking, listening comprehension and writing. The emphasis is on discourse, lexicology and morphology, word-bank broadening of communicational/spoken English as well as English for specific purpose appropriate for university students. This course is a follow up of the Conversational English course 1.

Class syllabus:
This course's focus is to broaden spoken/communicational English for students with B2/C1 level of English knowledge(Upper-Intermediate/Lower Advanced).

Recommended literature:
Appropriate study material is supplied based on the participants'level of English by the lecturer. (Sources- The Guardian, The Herald Morning Sun. The Nine News, The West Australian, BBC News and podcasts, CNN podcasts).

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 201

A	B	C	D	E	FX
82,09	8,96	2,49	1,0	0,0	5,47

Lecturers: Mgr. Aneta Barnes

Last change: 11.04.2024
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-107/22	Financial Management

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 1.

Educational level: II.

Prerequisites:

Recommended prerequisites:
Fundaments of Financial Management, Money and Banking

Course requirements:
Continuous assessment: active participation in classes, continuous test, condition for the exam ismin. 70% of the interim evaluation (i.e. 21 points)
Exam: written exam - theoretical and computational part
Scale of assessment (preliminary/final): 30/70

Learning outcomes:
The course deepens knowledge and understanding of the basics of financial management, brings another dimension of financial manager's practice and emphasizes its role in deciding on the optimal capital structure of the company, profitability and risk in capital budgeting, selected issues of management and control of current components. It also deals with the issue of financial investments and the creation of a portfolio of securities, financial derivatives and their use in the financial management of the company, as well as sustainable investments and valuation of businesses and their assets based on the ESG methodology. Explains selected issues of international financial management and current trends in financial markets.

Class syllabus:
Project cash flow analysis; factors that affect them, the value of the project management option, evaluation of projects with unequal life span, the optimal economic life of the project, inflationary effects on project cash flows
Risk analysis and optimal capital budget: project risk, sensitivity analysis and analysis of possible scenarios, Monte Carlo simulation, decision trees, optimal capital budget, capital rationalization
Long-term financial planning: linear and nonlinear forecasting models, financial control system
Introduction to the theory and practice of capital structures: business risk and factors that affect it, financial risk, basic theories of capital structures, optimal capital structure.
Dividend policy: theories of investor preferences, residual dividend model, factors influencing the company's dividend policy.

Sources of long-term financing: stock markets, organized exchanges and OTC markets, advantages and disadvantages of ordinary shares, investment banking process, bonds and their rating, advantages and disadvantages of financing from foreign sources, basic characteristics of leasing, advantages of leasing financing, priority shares - advantages and disadvantages, warranties, convertible bonds
Current assets management, cash management, inventory management and receivables management
Short-term financing: asset financing - aggressive and conservative approach, alternatives to current assets financing, lending techniques, factoring
Cash Conversion Cycle: Conversion Cycle, Baumol Model, Optimal Cash Transfer, Monte Carlo Simulation and Cash Security Level, Cash Budgeting
ESG factor analysis: assets and business entitities evaluation

Recommended literature:
Financial management. Theory and practice: Eugene F. Brigham, Michael C. Ehrhardt. Cengage Learning, 16th edition, 2019
Principles of Corporate Finance: Richard A. Brealey, Stewart C. Myers, Franklin Allen. McGraw Hill, 13th edition, 2019
Relevant professional and scientific journals and statistical data portals

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 463

A	B	C	D	E	FX
23,97	31,32	19,87	14,47	9,29	1,08

Lecturers: doc. PhDr. Daniela Majerčáková, PhD., MBA, Mgr. Filip Šubín

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 7.

Educational level: I., I.II., II.

Prerequisites:

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

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:
Capelle Guy, Menand Robert: Le Nouveau taxi 1, Hachette FLE Paris, France 2009, ISBN 978-2-01-155548 - 9

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 499

A	B	C	D	E	FX
48,5	19,44	16,63	7,82	2,0	5,61

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 8.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:

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

Recommended literature:
Capelle Guy, Menand Robert: Le Nouveau taxi 1, Hachette FLE Paris, France 2009, ISBN 978-2-01-155548 - 9

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 307

A	B	C	D	E	FX
45,6	22,48	16,94	8,79	2,28	3,91

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3., 9.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:

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

Recommended literature:
Capelle Guy, Menand Robert: Le Nouveau taxi 1, Hachette FLE Paris, France 2009, ISBN 978-2-01-155548 - 9

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 128

A	B	C	D	E	FX
48,44	24,22	17,19	5,47	0,78	3,91

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4., 10.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:

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

Recommended literature:
Menand Robert: Le Nouveau taxi 2, Hachette FLE, Paris, France 2009, ISBN 978-2-01-155551 - 9

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 79

A	B	C	D	E	FX
43,04	32,91	16,46	2,53	1,27	3,8

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1., 3.

Educational level: I., II.

Prerequisites: FMFI.KMANM/1-MAT-250/22 - Mathematical Analysis (4) or FMFI.KMANM/2-MMN-103/22 - Ordinary Differential Equations

Recommended prerequisites:
Elements of differential and integral calculus

Course requirements:
Evaluation from exercises during semester: 2 written tests 20 points each, to pass to the final examination, minimum of 10 points from semester is required.
Final examination: oral
Indicative assessment scale: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 40/60

Learning outcomes:
Introduction to linear functional analysis.

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

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

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 144					
A	B	C	D	E	FX
34,72	20,14	15,97	13,89	11,11	4,17
Lecturers: prof. RNDr. Michal Fečkan, DrSc., Mgr. Július Pačuta, PhD.					
Last change: 19.09.2022					
Approved by: prof. RNDr. Michal Fečkan, DrSc.					

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 7.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
To master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)

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.
This course's focus is to master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)

Recommended literature:
Appropriate study material is supplied by teacher based on the participants'level of German proficiency.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 874

A	B	C	D	E	FX
38,33	24,71	18,42	8,81	2,86	6,86

Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Dobiašová, PhD.

Last change: 05.09.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 8.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
To master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)

Class syllabus:
German 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 German.
This course’s focus is to to master the fundamentals of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency)

Recommended literature:
Appropriate study material is supplied by teacher based on the participants’level of German proficiency

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 542

A	B	C	D	E	FX
38,01	19,56	19,56	12,36	3,51	7,01

Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Dobiašová, PhD.

Last change: 05.09.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3., 9.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
Master the basics of general language and basic professional terminology of individual fields of study (depending on the advanced level of students)

Class syllabus:
The course is a follow-up to the German language (1,2). The subject provides a course of intermediate or advanced German language.
This course's focus is to deepen the knowledge of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency).

Recommended literature:
Appropriate study material is supplied by teacher based on the participants'level of German proficiency.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 191

A	B	C	D	E	FX
45,03	23,04	19,37	6,81	2,09	3,66

Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Dobiašová, PhD.

Last change: 05.09.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4., 10.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
Master the basics of general language and basic professional terminology of individual fields of study (depending on the advanced level of students)

Class syllabus:
The course is a follow-up to the German language (1-3). It provides a course of intermediate and advanced German language.
This course's focus is to deepen the knowledge of the common language and basic technical terms of particular fields of study (depending on the student's level of German proficiency).

Recommended literature:
Appropriate study material is supplied by teacher based on the participants'level of German proficiency.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 104

A	B	C	D	E	FX
44,23	22,12	14,42	10,58	3,85	4,81

Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Dobiašová, PhD.

Last change: 05.09.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.CENAM/2-MXX-134/26	**Course title:** Innovation and Entrepreneurship in Natural and Technical Sciences

Educational activities:
Type of activities: lecture / independent work
Number of hours:
per week: 2 / 1 **per level/semester:** 26 / 13
Form of the course: on-site learning

Type, volume, methods and workload of the student - additional information
2/1 (lecture / individual work)

Number of credits: 3

Recommended semester: 1., 7.

Educational level: I.II., II.

Prerequisites:

Course requirements:
The condition for admission to the exam is active participation in at least 80% of the lessons.
The final assessment consists of a presentation of the semester project. To successfully complete the course, it is necessary to achieve at least 50% of the overall score.
Scale of assessment (preliminary/final): 0/100

Learning outcomes:
After completing the course, students can describe the possibilities for commercialization of scientific and technological research. They can identify market needs, assess the market potential of a technological solution, and are familiar with the terminology of entrepreneurship, technology transfer, and intellectual property protection. They understand the overall structure of a business plan and the main forms of financing for technological projects. They are familiar with the principles of communication, teamwork, and team leadership and can apply them appropriately in project work and its presentation.

Class syllabus:
1. Commercialization of scientific research.
2. Fundamentals of entrepreneurship and startup terminology.
3. Identification of problems and customer needs analysis (design thinking).
4. Technology transfer. Technology Readiness Levels (TRL).
5. Intellectual property and its protection.
6. Market, customer, and market potential of a technological solution.
7. Business Model Canvas. Revenue models.
8. Sources of financing for technological projects.
9. Pitching and communication of the solution.
10. Fundamentals of management and leadership.
11. Innovation support and incubation structures at national and international levels.

Recommended literature:
Clark, Timothy R., et al. Business Model Generation. Wiley, 2010

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 0

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

Lecturers: doc. RNDr. Tomáš Plecenik, PhD., Mgr. Veronika Hidaši Turiničová, PhD.

Last change: 13.03.2026

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-EFM-201/22	Insurance Theory

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
The course assessment is based only on the final written exam (with a weight of 100%), which has a possible (supplementary) oral part.
Grade thresholds: A: at least 90.00%; B: 89.99% – 80.00%; C: 79.99% – 70.00%; D: 69.99% – 60.00%; E: 59.99% – 50.00%; Fx: 49.99% – 0.00%.
Scale of assessment (preliminary/final): Practical work during semester 0% / final exam 100%.

Learning outcomes:
After completing the course, the student will master mathematical modeling techniques in life and non-life insurance. The student will be able to solve typical problems, e.g., risk premium calculation and estimation of the technical provisions. The student will also get acquainted with forms of deductible and reinsurance and actuarial modeling techniques.

Class syllabus:
The collective risk model in general insurance. Methods of mathematical modeling in life and non-life insurance, actuarial model construction techniques. Deductible, excess, and franchise. Reinsurance: proportional and non-proportional forms of reinsurance. Estimation of technical provisions in non-life insurance, deterministic and stochastic run-off triangles. The stochastic model of life insurance. Yield curves and their applications in insurance. International Financial Reporting Standard (IFRS) 17 Insurance Contracts and its impact on the actuarial calculations.

Recommended literature:
Life Insurance Mathematics / Hans U. Gerber. Heidelberg : Springer, 1997, ISBN 978-3-662-03460-6;
Modely v životnom a neživotnom poistení / Rastislav Potocký. Bratislava : Statis, 2012;
Modern Actuarial Risk Theory Using R / Rob Kaas, Marc Goovaerts, Jan Dhaene, Michel Denuit. Second Edition, Heidelberg : Springer-Verlag, 2008;
Poistná matematika / Viera Sekerová, Mária Bilíková, Bratislava : Ekonóm, 2005;
Aplikovaná poistná štatistika / Viera Pacáková. Bratislava : Iura Edition, 2004;
study materials of the lecturer.

Languages necessary to complete the course:

Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 41

A	B	C	D	E	FX
65,85	7,32	19,51	4,88	2,44	0,0

Lecturers: Mgr. Gábor Szűcs, PhD., doc. Mgr. Igor Melicherčík, PhD.

Last change: 12.12.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-EFM-217/11	Insurance Theory Classes

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

Recommended prerequisites:
2-EFM-201 Insurance Mathematics

Course requirements:
During the semester, the student can get 100% points after writing one test, which is usually written during the last two weeks of the semester.
Grade thresholds: A: at least 90.00%; B: 89.99% – 80.00%; C: 79.99% – 70.00%; D: 69.99% – 60.00%; E: 59.99% – 50.00%; Fx: 49.99% – 0.00%.
Scale of assessment (preliminary/final): Practical work during semester 100% / final exam 0%.

Learning outcomes:
After completing the course, the student will master mathematical modeling techniques in life and non-life insurance. The student will be able to solve typical problems, e.g., risk premium calculation and technical provision estimation. The student will also get acquainted with forms of deductible and reinsurance and actuarial modeling methods.

Class syllabus:
Methods of mathematical modeling in life and non-life insurance, actuarial model construction techniques. Deductible, excess, and franchise. Reinsurance: proportional and non-proportional forms of reinsurance. Estimation of technical provisions in non-life insurance, deterministic run-off triangles: chain-ladder method, separation method and other methods. The stochastic model of the life insurance. Yield curves and their applications in insurance.

Recommended literature:
Life Insurance Mathematics / Hans U. Gerber. Heidelberg : Springer, 1997, ISBN 978-3-662-03460-6;
Modely v životnom a neživotnom poistení / Rastislav Potocký. Bratislava : Statis, 2012;
Modern Actuarial Risk Theory Using R / Rob Kaas, Marc Goovaerts, Jan Dhaene, Michel Denuit. Second Edition, Heidelberg : Springer-Verlag, 2008;
Aplikovaná poistná štatistika / Viera Pacáková. Bratislava : Iura Edition, 2004;
study materials of the lecturer.

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 154

A	B	C	D	E	FX
49,35	20,78	10,39	6,49	5,84	7,14

Lecturers: Mgr. Gábor Szűcs, PhD., Mgr. Lívia Rosová, PhD.

Last change: 12.12.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-141/22	International Finance

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: active participation during the classes, writting assignment, midterm test
Final evaluation: test
Scale of assessment (preliminary/final): 30/70

Learning outcomes:
By completing this course, the student will gain knowledge and overview of the field of international finance, monetary and macroeconomic international relations, innovation and research in the field. Within the course, the student has the opportunity to get acquainted with personalities working in the field of international finance during discussions and invited lectures. The course will be partially provided by the experts from practice.

Class syllabus:
Principles of international finance. International payments and balance of payments. Foreign exchange market. International financial market structure, institutions, competencies, goals. Alternative finance and alternative exchange rate systems. Floating exchange rates. Equilibrium and adaptation process. External imbalance. Risk management and international capital movements. Minimization of transaction costs. Business risks and risk assessment models. Guarantees and standby letters of credit. Monetary market mechanism and equilibrium approaches. Euro-currency markets. Currency futures and options.

Recommended literature:
Financial Markets & Institutions, Madura Jeff, Cengage, 13th edition, 2021
The Handbook of International Trade and Finance: Grath Anders, Kogan Page, 2016
The Handbook of International Financial Terms: Moles Peter & Terry Nicholas, Oxford University Press, 2005

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 27

A	B	C	D	E	FX
96,3	0,0	0,0	0,0	3,7	0,0

Lecturers: doc. PhDr. Daniela Majerčáková, PhD., MBA, Mgr. Alexandra Mittelman, PhD., MBA

Last change: 17.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KDMFI+KAI/2-MXX-131/21	International Team-based Research Project

Educational activities:
Type of activities: course / independent work
Number of hours:
per week: 3 **per level/semester:** 39 / 30s
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1., 7.

Educational level: I.II., II.

Prerequisites:

Course requirements:
Continuous assessment: active participation in research in an international student team (25%), presentation of work in a workshop (25%), scientific article (50%)
Indicative evaluation scale: A 90 %, B 80 %, C 70 %, D 60 %, E 50 %
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students will learn in the team to agree on a common research topic, formulate research questions, determine research methods for the problem, collect and evaluate data, discuss their findings, present research results to the professional public, analyze and evaluate the scientific work of their colleagues, prepare a scientific article suitable for publication

Class syllabus:
- Research methodology
- Design and implementation of a research project in an international group (preferably interdisciplinary)
- Methods and tools for collaboration in virtual space, collaboration in science and practice
- Academic writing, presentation of research results through scientific articles; objectives, content and structure of scientific articles; forms of academic publication, publication forums and evaluation of their quality
- Quality assurance and feedback - peer review
- Communication of results through posters or conference presentations

Recommended literature:
- Teachers' own electronic study materials published on the course website or in the Moodle system
- Gavora, Peter a kol. 2010. Elektronická učebnica pedagogického výskumu. [online]. Bratislava : Univerzita Komenského, 2010. Dostupné na: http://www.e-metodologia.fedu.uniba.sk/ ISBN 978–80–223–2951–4.

- Tharenou, P., Donohue, R. and Cooper, B., 2007. Management research methods. Cambridge University Press.
- Topping, A., 2015: The Quantitative-Qualitative Continium. In: Gerrish, K. and Lathlean, J., The Research Process in Nursing, p. 159-172
- Williamson, K. and Johanson, G. eds., 2017. Research methods: Information, systems, and contexts. Chandos Publishing.

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 10

A	B	C	D	E	FX
70,0	0,0	0,0	0,0	30,0	0,0

Lecturers: prof. RNDr. Zuzana Kubincová, PhD., doc. RNDr. Martin Homola, PhD.

Last change: 22.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-222/22	Investment Analysis

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 3.

Educational level: II.

Prerequisites:

Recommended prerequisites:
Financial management

Course requirements:
Continuous assessment: active participation during the classes, elaboration and presentation of the selected topic, preparation and realization of the opposition to the assigned topic
Final evaluation: exam in the form of a written test with oral examination
Scale of assessment (preliminary/final): 40/60

Learning outcomes:
The aim of the subject is to deepen student's knowledge about financial markets, its problems and risks, as well as about some products, which are tradeable at those markets. The purpose of the course is also familiarization of basic methods and techniques of investing to stocks and bonds.

Class syllabus:
International financial management: purchasing power parity, unsecured interest rate parity, term parity, covered interest rate parity, yield of investment in foreign country, effect of global diversification, examples of global investment strategies, financial markets correlation.
Acquisition and mergers: reasons for acquisitions and mergers, tactics and defence during mergers and acquisitions, forms of business combinations, structure of supply for take over, tasks of investment banks during mergers and acquisitions.
Financial risks: value at risk (VaR), measurement of interest risk by VaR, surveying of interest positions, VaR and diversification effects, VaR of investment portfolios, project's impact on VaR, cash-flow at risk (CaR).
Financial derivates and hedging of risks: types of financial derivates and their standardization, long- and short- position, term-contracts pricing, hedging of open positions, risk factors, examples of complicated hedging techniques, option parity, replication of option position, option pricing methods, riskless arbitrage, dynamic data-hedging, sensitivity parameters, interest and currency swap.

Duration and immunization: yield curves and interest structures, Macaulay duration, present value effect and reinvesting effect while investing to bonds, modified duration, effective duration and key-rate duration, immunization of open bond positions.
Investment trends and the optimal portfolio development: ESG methodology, green investments, blue investments, social and environmental investments; current situation on the financial markets, monitoring the development and trends of the financial markets

Recommended literature:

Modern Portfolio Theory and Investment Analysis: Elton, E.J. – Gru, M.J., John Willey, 2014
Principles of Corporate Finance: Brealey, R. A., Myers, S. C. 7th Edition, McGraw Hill, 2003
Portfolio Selection: Efficient Diversification of Investments. Markowitz, Harry M. New York: Wiley
The pricing of options and corporate liabilities: Black, F, M. Scholes. Journal of Political Economy, 81, pp 637-654.

Languages necessary to complete the course:
English

Notes:

Past grade distribution
Total number of evaluated students: 154

A	B	C	D	E	FX
42,86	24,03	14,29	6,49	12,34	0,0

Lecturers: doc. PhDr. Daniela Majerčáková, PhD., MBA

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KEF/2-MMN-126/22	Managerial Accounting

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Antirequisites: FMFI-FM.KEF/2-MMN-126/00

Course requirements:
Weight of the intermediate / final evaluation: 50/50
Scale of assessment (preliminary/final): 50/50

Learning outcomes:
After completing the course the student should be able to:
1. Understand the relationship between costs in society and sources of costs.
2. Use cost-volume-gain analysis and sensitivity analysis.
3. Estimate cost functions using mathematical methods.
4. Understand what relevant costs are important for managerial decision making.
5. Be able to compile cost calculations using standardized and extended standardized calculations, and other methods, to quantify cost and revenue variations and explain them.
6. Understand the principle of compiling the ABC calculation - according to the purpose breakdown of costs.
7. Make a budget
8. Bucket the Balance Score Card approach

Class syllabus:
1. Definition of managerial accounting
2. Cost categorization, cost behavior. Relevant and irrelevant costs from the point of view managerial decision-making.
3. CVP analysis, turning point, safety zone, operating leverage, financial leverage.
4. Variable and full cost model
5. Cost calculation - standard method / methods of standard costs. Introduction of standard methods, setting norms / standards /, basic calculation, finding out the causes of changes in standards,
deviations from standards and finding out calculations. Display standard method information in accounting

6. Cost calculation - traditional and ABC calculation.
7. Deviations in real and planned costs, their presentation in internal accounting,
analysis of their origin
8. Budget, compilation of the main financial budget in the production company. Types of budgets. Basic goals of the system of plans and budgets at the level of the company as a whole, budgets of results, balance sheets and cash flows. Long-term budget fin. resources, implementation budget and operational
budgets. Applying a flexible budget with different capacities
9. Responsible accounting. Revenues of responsibility centers. Types, content and features internal prices. Internal profit or loss
10. Prices. Selected pricing issues. Cost - based pricing,
demand and on a competitive basis. Price calculation
11. Types and characteristics of some types of prices, their application. Transfer pricing decision making and price monitoring
12. Balanced Score Card

Recommended literature:

Text/Required materials:

[1] Papikova L. Uvod do manazerskeho uctovnictva, 2023, Vydavatelstvo UK.
[2] Colin Drury: Management Accounting for Business 11th edition
[3] Jerry J. Weygandt, Paul D. Kimmel, Donald E. Kieso- Financial and Managerial Accounting, WileyPLUS, 2nd, Edition, 2018

Languages necessary to complete the course:

Notes:

Past grade distribution

Total number of evaluated students: 19

A	B	C	D	E	FX
21,05	36,84	31,58	5,26	5,26	0,0

Lecturers: prof. RNDr. Darina Saxunová, PhD.

Last change: 10.10.2023

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KSP/2-MMN-125/22	Managerial Decision-Making

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2.

Educational level: II.

Prerequisites:

Recommended prerequisites:
Completed bachelor study.

Course requirements:
The overall evaluation is in accordance with the faculty evaluation system: A = 91-100%; B = 81 90%; C
= 73-80%; D = 66-72%; E = 65-60%; F = 0-59%.
Scale of assessment (preliminary/final): Continuous: 40% / Exam: 60%. The exam consists of a written mid-term examination of 30% and a final exam of the examination period of 30%.

Learning outcomes:
Decision-making is one of the main responsibilities and functions of managers and managers are evaluated and rewarded based on the success of their decisions. The aim of the course is to improve students' decision-making skills and contribute to their ability to effectively and creatively solve problems both individually and within teams. Graduates of the course will learn to perceive decision-making as a systematic process in the context of problem solving. They will be able to use rational decision-making methods under conditions of certainty, uncertainty and risk, as well as address a sequence of follow-up decisions. They will perceive the psychological perspective of decision making. They will get acquainted with the techniques of group and team decision making. The acquired theoretical knowledge will be practically practiced through several simulations and case studies.

Class syllabus:
1. Introduction to the subject. Management decision making. The essence of managerial decision making. Managerial decision - making process.
2. Rational approaches in managerial decision making. Methods and approaches to decision-making under conditions of certainty, uncertainty and risk. Sequence of decisions and decision trees.
3. Psychological aspects of managerial decision making. Two systems in us. Anchorage heuristics, availability and representativeness. Prospectus theory. Irrational types of elections. Limits of the human mind.

4. Group decision making. Task definition, work planning and group staffing. Leading a group meeting. Creative methods and techniques of group decision making.

Recommended literature:

DOUMPOS, M. et al.: New Perspectives in Multiple Criteria Decision Making : Innovative Applications and Case Studies. 2019. Available on the Internet: https://link.springer.com/book/10.1007/978-3-030-11482-4.
GRÜNIG, R. – KÜHN, R.: Successful Decision-making : A Systematic Approach to Complex Problems. 1st ed. Berlin : Springer, 2005. 231 p. ISBN 3-540-24307-0.
KAHNEMAN, D.: Thinking, Fast and Slow. NY : Farrar, Straus and Giroux, 2011. 499 p. ISBN 978-0-374-53355-7.
MONAHAN, G.: Management Decision Making. Cambridge : Cambridge University Press, 2007. ISBN 978-0-521-78118-3.
THALER, R. – SUNSTEIN, C.: Nudge : The Final Edition. Penguin Books, 2021, 384 p. ISBN 978-0143137009.
The recommended literature also includes publications using the results of our own research.
GÁL, P. – HOLIENKA, M. – HOLIENKOVÁ, J.: Decision-making of student entrepreneurs: positive, creative, fast, and simultaneously wise. In: International conference on Decision making for small and medium-sized enterprises : Conference proceedings. Karvina : Slezska univerzita v Opave, 2019. s. 88-95 [online]. ISBN 978-80-7510-339-0.
GÁL, P.: Marketing Implications of Framing in the Decision-Making, In: Acta Univ. Agric. Silvic. Mendel. Brun, 2018, 66(5): 1267 – 1273, doi: 10.11118/actaun201866051267.
GÁL, P. – MRVA, M. – GAJDOŠOVÁ, Z.: The cognitive reflection test and the propensity to use heuristics in decision making. In: Comenius Management Review, 2014, 8(2), 29-40. ISSN 1337-6721.
GÁL, P. – MRVA, M. – MEŠKO, M.: Heuristics, biases and traps in managerial decision making. In: Acta Univ. Agric. Silvic. Mendel. Brun, 2013, 61(7), 2117-2122; ISSN 1211-8516. doi:10.11118/actaun201361072117.
MRVA, M. – GÁL, P. – MEŠKO, M. – MARCIN, P.: Heuristics in the Process of DecisionMaking. In: Comenius Management Review, 2013 7(2): 28-40. ISSN 1337-6721.
Materials from the Erasmus+ project ARTCademy: https://www.artcademy.eu/.
Other materials might be distributed throughout the semester to individual problem areas.
Students need remote access to the Internet through the Comenius University network proxy.

Languages necessary to complete the course:

Slovak / English

Notes:

Subject is provided only in the summer semester.
The course might be taught online through MS Teams.
In compliance with the regulations of the internal regulation No. 16/2017 Rector’s Directive Comenius University in Bratislava Full reading of the internal regulation No. 23/2016 Rector’s Directive Comenius University in Bratislava, which issues the Code of Ethics of the Comenius University in Bratislava as read in supplement No. 1, every student acquires his/her study results honestly; does not cheat and use dishonest practices during any form of assessment of his/her acquired knowledge. Cases of breaking the Code of Ethics of Comenius University can be judged as breaking the duties following from legal regulations, (...). Such judgement may be connected with enforcing accompanying legal consequences on academic, (...) disciplinary level.
In accordance with the regulations of the internal regulation No. 13/2018 approved by the Academic senate of Comenius University in Bratislava the Disciplinary Regulations of Comenius University in Bratislava for Students, a disciplinary offence of a student is any form of copying

or forbidden cooperation or providing answers during written or oral examination (assessment of knowledge) or during preparation for it within the course, or using technical devices or any information carriers in other than allowed ways during written or oral evaluation of study results (assessment of knowledge) or during preparation for it within the course. Committing a disciplinary offence may lead to imposing some disciplinary precautions on the student: admonition, conditional suspension of studies or dismissal from studies.

Past grade distribution
Total number of evaluated students: 166

A	B	C	D	E	FX
27,71	30,72	21,69	10,84	9,04	0,0

Lecturers: Mgr. Miloš Mrva, PhD., Mgr. Peter Marcin, PhD.

Last change: 05.04.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KMk/2-MMN-122/22	Marketing Management

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 1.

Educational level: II.

Prerequisites:

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

Learning outcomes:

Class syllabus:

Recommended literature:
1. PAJTINKOVÁ BARTÁKOVÁ, G. – GUBÍNIOVÁ, K. 2012. Udržateľný marketingový manažment. Trenčín : Inštitút aplikovaného manažmentu, 2012. ISBN 978–80–89600–08–3
2. BARTÁKOVÁ, Gabriela a kolektív. 2007. Marketing manažment II – ako v súčasnom trhovom prostredí postupovať. Bratislava : 228 s.r.o., 2007. ISBN 978-80-969856-1-6
3. KOTLER, P. 2010. Chaotika: Manažment a marketing firiem v turbulentných časoch. Bratislava : Eastone Books, 2010. ISBN 978-80-8109-114-8

Languages necessary to complete the course:
Sloavk, English

Notes:

Past grade distribution
Total number of evaluated students: 239

A	B	C	D	E	FX
22,59	28,03	20,92	13,39	12,55	2,51

Lecturers: doc. Ing. Gabriela Pajtinková Bartáková, PhD., doc. JUDr. PhDr. Katarína Gubíniová, PhD.

Last change: 24.01.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KMk/2-MMN-127/22	Marketing Research

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Recommended prerequisites:
Marketing management

Course requirements:
40 % interim evaluation:
- active participation (in case of unexcused absence or unpreparedness for the exercise, resp. loss of 10%)
- application of acquired theoretical knowledge to selected issues - 40%
60 % final evaluation:
- exam - written, online test using selected application (MS Forms)
Electronic communication and method of distribution of study materials is carried out by MS Teams application.
The semester project is elaborated continuously at individual seminars, namely the assignment is always given one week in advance at the seminar. Students develop a research project independently according to the teacher's assignment. Semester project is handed out without the possibility of additional adjustments and additional exchanges.
Exam dates will be determined based on the coordination of dates no later than 1 week before the start of the exam period.
The knowledge, skills, competencies, and transferable abilities the student acquires by successfully completing the subject affect his personal development and can be used in his future career and life as an active citizen in democratic societies. These are listed in the subject syllabus.
Following the provisions of § 71 of Internal Regulation no. 14/2023 approved by the Academic Senate of Comenius University Bratislava Full text of Regulation no. 23/2021 Internal system of ensuring the quality of higher education of the Comenius University Bratislava as amended by Addendum no. 1 and Appendix no. 2, each student consistently achieves his/her study results honestly during his/her studies; does not cheat or use dishonest procedures during any form of verification of his study knowledge and knowledge. Cases of violation of this provision can be assessed as a violation of obligations arising from legal regulations (...). Such an assessment may be associated with applying relevant legal consequences on an academic, (...) or disciplinary level.

Following the provisions of internal regulation no. 13/2018 approved by the Academic Senate of the Comenius University Bratislava Disciplinary regulations of the Comenius University Bratislava for students, a student's disciplinary offence is any form of writing off or illegal cooperation or hinting during the written or oral evaluation of study results (knowledge verification) or during preparation for it within the course, or the use of technical devices or any information carriers in a way other than permitted during the written or oral evaluation of study results (knowledge verification) or during preparation for it within the subject. Some of the disciplinary measures may be imposed on the student for a committed disciplinary offence: reprimand, conditional expulsion from studies or expulsion from studies.
Scale of assessment (preliminary/final): 40/60

Learning outcomes:
After completing the course students will be able to analyze and interpret data that are used in marketing practice. They will obtain the ability and skills required to work in managerial and professional positions using the information in the context of marketing management. Students will be eligible to solve complex problems related to research and they will be able to analyze the market and customers.

Class syllabus:
1. The role of marketing research in management of marketing activities – introduction.
2. Process of marketing research.
3. Typology of marketing research.
4. Survey as marketing research method.
5. Observation as marketing research method.
6. Experimental design in marketing research.
7. Sampling.
8. Panel research and omnibus research.
9. Data analysis – descriptive analysis: one-dimensional, two-dimensional and multidimensional descriptive analysis.
10. Hypothesis testing.
11. Data analysis – advanced analysis: regression analysis, correlation coefficient, factor analysis.
12. Data analysis – advanced analysis: structural equation modeling, cluster analysis and conjoint analysis.
13. Tendencies in the development of marketing research.

Recommended literature:
• BRADLEY, N., 2013. Marketing Research tools and Techniques. Oxford: Oxford University Press, 2013. ISBN 978-0-19-965509-0
• GUBÍNIOVÁ, K. et al. 2022. Trendy v spotrebiteľskom správaní – teória a prax. Zlín: VeRBuM, 2022. ISBN 978-80-88356-12-7
• HAGUE, P. N., HAGUE, N., 2004. Market Research in Practice: A Guide to the Basics. Pages: 257, Publisher: Kogan Page Ltd, 2004. E-source: <http://site.ebrary.com/lib/uniba/Doc?id=10084442>
• CHAN, E. Y., 2024. Consumer behavior in practice. Strategic insights for the modern marketer. Palgrave Macmillan, 2024. ISBN 978-3-031-50949-0
• CHURCHILL, A. G. – IACOBUCCI, D., 2010. Marketing Research. Methodological Foundations. South-Western, Cengage Learning, 2010. ISBN 0-538-74377-8
• KOZEL, R., 2006. Moderní marketingový výzkum. Praha: Grada Publishing, 2006. [online]. Available from: <http://books.google.sk/books?id=1EfM8GQiOBcC&dq=marketingov%C3%BD+v%C3%BDzkum&source=gbs_navlinks_s>

• KUMAR, V., 2024. International marketing research. A transformative approach. Palgrave Macmillan, 2024. ISBN 978-3-031-54649-5
• OLŠAVSKÝ, F., 2016. Brands, net disposable income and consumer behavior of Slovaks. In: Management in theory and practice. Praha: Newton College, 2016. ISBN 978-80-87325-08-7
• PELLEGRINO, A., 2024. Decoding digital consumer behavior. Bridging theory and practice. Springer, 2024. ISBN 978-981-97-3453-5
• RICHTEROVÁ, K. a kol. 2007. Marketingový výskum. Bratislava: Ekonóm, 2007. ISBN 80-225-2362-2
• SCHARRER, E. a RAMASUBRAMANIAN, S., 2021. Quantitative Research Methods in Cmmunication. The Power of Numbers for Social Justice. Rountledge, 2021. ISBN 978-0-367-54785-1
• ŠTARCHOŇ, P., PŠENÁK, P. and MIKLOŠÍK, A., 2022. Medzigeneračné rozdiely v správaní slovenských spotrebiteľov. Zlín: VeRBuM, 2022. ISBN 978-80-88356-09-7
• TAHAL, R. a kol. 2017. Marketingový výzkum. Postupy, metody, trendy. Praha: Grada Publishing, 2017. ISBN 80-271-0206-8
• VOKOUNOVÁ, D. a kol. 2004. Praktikum z prieskumu trhu. Bratislava: Ekonóm, 2004. ISBN 80-225-1753
• Trend, Journal of International Marketing and Marketing Science and Inspirations journals
With regard to new and available resources, supplementary literature will be updated on a continuous basis.

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 95

A	B	C	D	E	FX
46,32	30,53	22,11	0,0	1,05	0,0

Lecturers: Mgr. František Olšavský, PhD., Mgr. Lucia Vilčeková, PhD.

Last change: 17.02.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-237/15	Mathematical Skills in Management

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: II.

Prerequisites:

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

Learning outcomes:
To acquaint students with basic concepts and methods of marketing research, work with data and work with databanks. To prepare students to work in companies as individuals and as a team.

Class syllabus:
Individual in the company, team tasks, presentation skills, SQL, working with database, searching for essential data for marketing goal, internal and external databases, analysis of company data, collection and analysis of external data, special data analysis, report creation, presentable and interesting presentation .

Recommended literature:
Jones Arie D., Plew Ronald R., Stephens Ryan K., Naučte se SQL za 28 dní, 978-80-251-2700-1
Richterová K., Prieskumy pre marketingový manažment SOFA 2009
Kotler P., Moderní marketing, Grada 2007

Languages necessary to complete the course:
Slovak

Notes:

Past grade distribution
Total number of evaluated students: 162

A	B	C	D	E	FX
94,44	3,7	1,23	0,0	0,62	0,0

Lecturers: Mgr. Lukáš Polesňák

Last change: 25.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

STATE EXAM DESCRIPTION

Academic year: 2026/2027	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KMANM/2-MMN-956/22	**Course title:** Mathematics and Management
Number of credits: 6	
Educational level: II.	
Class syllabus: http://www.hore.dnom.uniba.sk	
State exam syllabus:	
Languages necessary to complete the course: Slovak, English	
Notes: State exam is yearly updated. Information is available at: http://www.hore.dnom.uniba.sk	
Last change: 16.06.2022	
Approved by: prof. RNDr. Michal Fečkan, DrSc.	

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-DAV-304/20	Network Science

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:
Intermittent assessment: homework (30%), project (15%), project presentation (5%)
Exam: written (50%)
To successfully complete the course, student has to obtain at least 50% of points on the final exam
Final grade: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 50/50

Learning outcomes:
Complex systems can often be represented as a network of a number of interacting components. The aim of the course is to get explore examples of complex networks in applications in physics, informatics, biology and social sciences, as well as with algorithmic, computational and statistical methods for the analysis of their behavior.

Class syllabus:
1. Introduction to networks.
2. Basic concepts and algorithms in graph theory (optimal paths, optimal flows).
3. Measures and metrics on networks.
4. Structure of large networks.
5. Random network models and their characteristics (Erdős-Rényi, Watts-Strogatz, Barabási-Albert).
6. Dynamics on networks (evolutionary algorithms, percolation, epidemiological models, synchronization on networks).

Recommended literature:
Grafové algoritmy / Ján Plesník. Bratislava : Veda, 1983
Graphs, networks, and algorithms / Dieter Jungnicke. Berlin : Springer, 2005
A-L. Barabási, Network Science, 2015 , dostupné na webe (http://networksciencebook.com/).
M.E.J. Newman, Networks - An introduction , Oxford Univ Press, 2010.
D. Easley and J. Kleinberg, Networks, Crowds and Markets, Cambridge Univ Press, 2010, , dostupné na webe (https://www.cs.cornell.edu/home/kleinber/networks-book/)

Languages necessary to complete the course:

Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 125

A	B	C	D	E	FX
22,4	24,8	8,0	26,4	14,4	4,0

Lecturers: doc. Mgr. Richard Kollár, PhD., Mgr. Katarína Boďová, PhD.

Last change: 24.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-361/22	Nonlinear and Stochastic Optimization

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 1.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KMANM/1-MMN-361/12

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 187

A	B	C	D	E	FX
32,09	19,79	16,04	19,79	9,09	3,21

Lecturers: Mgr. Katarína Boďová, PhD.

Last change: 04.09.2023

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-101/22	Numerical Methods

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 2.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KMANM/2-MMN-101/00

Course requirements:
Preliminary assessment: 2 homeworks 10 points each, project 20 points
Final examination: written exam for 50 points and oral exam for 10 points
Grading scheme: A 90%, B 80%, C 70%, D 60%, E 48%
Scale of assessment (preliminary/final): 40/60

Learning outcomes:
The student will be able to work with modern methods for numerical solution of boundary value problems for ordinary differential problems and partial differential equations.

Class syllabus:
Numerical solution of boundary value problems for ODR, difference method, shooting method, variational methods.
Partial differential equations - the finite difference method and finite volume method for parabolic, hyperbolic equations and elliptic problems in 2D, explicit and implicit methods, stability, alternating directions method.
Applications of numerical methods in physical and biological applications of PDR.
Implementation of numerical algorithms in Matlab language

Recommended literature:
A. Ralston: A first course in numerical analysis, New York, 1965.
R. L.Burden, J. D. Faires: Numerical Analysis, Cengage Learning, 2010.
G. H. Golub, J. M. Ortega: Scientific Computing and Differential Equations: An Introduction to Numerical Methods, Academic Press, 1992
M. H. Holmes: An Introduction to Numerical Methods in Differential Equations, Springer, 2007

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution Total number of evaluated students: 122					
A	B	C	D	E	FX
8,2	19,67	22,13	24,59	22,95	2,46
Lecturers: Mgr. Jela Babušíková, PhD.					
Last change: 21.06.2022					
Approved by: prof. RNDr. Michal Fečkan, DrSc.					

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-103/22	Ordinary Differential Equations

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 3 / 2 **per level/semester:** 39 / 26
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 1.

Educational level: II.

Prerequisites:

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

Learning outcomes:

Class syllabus:
1. Local and global properties of solutions of systems of differential equations
2. Linear differential systems and linear differential equations of the n-th order.
3. Linear differential systems with constant coefficients.
4. Autonomous differential systems.
5. Boundary value problems and Sturm-Liouville eigenvalue problem.
6. Stability of solutions of differential equations.

Recommended literature:
M. Greguš, M.Švec, V.Šeda: Obyčajné diferenciálne rovnice, Alfa, SNTL, Bratislava, Praha, 1985.
M. Brown: Differential Equations and their Applications, Springer-Verlag, New York, 1975.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 468

A	B	C	D	E	FX
25,0	36,32	27,99	9,19	1,07	0,43

Lecturers: prof. RNDr. Jaroslav Jaroš, CSc., Mgr. Július Pačuta, PhD.

Last change: 24.01.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KMn/2-MMN-123/22	Organizational Behavior

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 52
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
50% continuous evaluation and 50% final evaluation.
Continuous evaluation:20% - report on solution and presentation of the assigned case study (weight 0,2) + written midterm test (weight 0,3)
Final evaluation: final comprehensive written exam (weight 0,5)
At least 91% must be obtained to obtain an A grade, at least 81% to obtain a B grade, at least 73% to obtain a C grade, at least 66% to obtain a D grade, and at least 60% to obtain an E grade. Gaining 59 points or less indicates an Fx grade.
Scale of assessment (preliminary/final): 50 / 50

Learning outcomes:
The course provides master's students with knowledge about approaches, concepts and practical application of research results in the field of Organizational Behavior as a current view of the management of organizations. This results in the development of students' ability to solve specific problems of organizations that are associated with people management. Students will gain new knowledge, e.g. on individual behavior, motivation, group dynamics, leading work groups, minimization of negative manifestations of group behavior, building authority, conflict resolution in the workplace and negotiations. The seminars in this course are based on the solution of case studies (case-based teaching) in the field of Organizational Behavior. Students will thus develop their skills of teamwork and systematic and creative solution of various problems of organizational practice.

Class syllabus:
1. Introduction. What is OB and why it is important, the nature of organizations, trends in the new workplace, OB and Management, the nature of managerial work, managerial skills. Dilemmas and challenges associated with leading groups and teams that current managers face in the workplace.
2. Management lessons from abroad – Organizational behavior and culture. How culture affects the perception of the world around us and the behavior of people in the work environment.
A culturally diverse work environment. Attributes of culture strongly influencing planning, negotiation, leadership, communication in the work environment.
3. Individuals in the organization. Components of work performance. Personality traits. Big

Five model. Values, attitudes. Perceptual process and perceptual barriers. Attribution error and implications for managerial practice.
4. Motivation. Practical implications of content and process theories of motivation. Job design. Motivational potential of work. Factors influencing motivation. Basic work attitudes (job satisfaction, job involvement, and organizational commitment).
5. Groups in the organization. Group dynamics. Tuckman's model of group dynamics. Effectiveness of work groups. Types of teams. Negative manifestations of group behavior and how to minimize them. Asch's effect. Groupthink. Stanford prison experiment.
6. Organizational design, classic and organic organizational structures. Determinants of organizational structure. Principles of creating organizational structure. Span of control, departmentalization, centralization, formalization, specialization of work. Interdependencies between organizational structure and organizational culture.
7. New model of organization. Learning organization.
8. Managing change in organizations, the role of the manager in the process of change management. Change agents. Lewin's model of change. Resistance to change and tactics to overcome it.
9. Power and authority. Sources of individual power. Organizational politics and employee political behavior in the organization.
10. Leadership. Definition of this process, its basic elements. Development of theoretical reflection of leadership through time. Classical theories (trait theories, behavioral theories, situational theories). Values-oriented leadership, neo-charismatic leadership, team leadership.
11. Managerial communication. Development of communication skills. Active listening. Effective feedback. Constructive criticism.
12. Decision-making and conflict resolution. Sources and types of conflicts. Task, relational and procedural conflicts. Productive conflict.
13. Negotiation - stages of the process and its elements.
Negotiation methods and tactics.

Recommended literature:

Lašáková, A. – Rudy, J. – Sulíková, R. – Vojteková, M. – Fratrič, J.: Organizačné správanie. Bratislava: UK, 2023.
Case studies (selection), Harvard Business Publishing, https://hbsp.harvard.edu/cases/?ab=browse%7Ccases
Jordan, F. P., & Lašáková, A. (2023). Alex in Kuwait: clash of cultures amidst automation. Emerald Emerging Markets Case Studies, 13(4), 1-29.
Lašáková, A., Vojteková, M., & Procházková, L. (2023). What (de) motivates gen Z women and gen Z men at work? Comparative study of gender differences in the young generation's motivation. Journal of Business Economics and Management, 24(4), 771-796.
Lašáková, A. – Remišová, A. – Kirchmayer, Z.: Are managers in Slovakia ethical leaders? Key findings on the level of ethical leadership in the Slovak business environment. In: Periodica Polytechnica Social and Management Sciences. - roč. 25, č. 2 (2017), s. 87-96.
Lašáková, A. – Remišová, A.: On organisational factors that elicit managerial unethical decision-making. In: Ekonomický časopis. - roč. 65, č. 4, (2017), s. 334-354.
Lašáková, A. - Bajzíková, Ľ. - Dedze, I. (2017). Barriers and drivers of innovation in higher education: Case study-based evidence across ten European universities. International Journal of Educational Development, 55, 69-79.
Rudy, J.: Management and Chaos Theory. Bratislava: Faber, 1997.
Comenius University Academic Library website – external information resources available to Comenius University at: https://uniba.sk/o-univerzite/fakulty-a-dalsie-sucasti/akademickakniznica-uk/externe-informacne-zdroje/

Journals: Organizational Behavior and Human Decision Processes, Organizational Dynamics, Organization Science, Academy of Management Journal, Academy of Management Review, Administrative Science Quarterly, Journal of Applied Psychology, Business Horizons, Human Relations, Journal of Personality and Social Psychology, Harvard Business Review
Other resources will be continuously added and updated (taking into account new and available resources).
Note: Additional recommended literature to each topic is included in the syllabus.

Languages necessary to complete the course:
Slovak, English

Notes:
An extensive syllabus is prepared for the course, which is electronically distributed to all students who have enrolled in this course at the beginning of the semester.

Past grade distribution
Total number of evaluated students: 52

A	B	C	D	E	FX
34,62	32,69	9,62	11,54	9,62	1,92

Lecturers: doc. PhDr. Rozália Sulíková, PhD., prof. Ing. Ján Rudy, PhD., prof. Mgr. Anna Lašáková, PhD., Mgr. Christopher Danis

Last change: 11.09.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-143/25	Origami

Educational activities:
Type of activities: practicals
Number of hours:
per week: 3 **per level/semester:** 39
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 46

A	B	C	D	E	FX
95,65	4,35	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Jaroslav Jaroš, CSc.

Last change:

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-109/22	Partial Differential Equations

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 3 / 2 **per level/semester:** 39 / 26
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 2.

Educational level: II.

Prerequisites:

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

Learning outcomes:

Class syllabus:
1. Linear and quasilinear partial differential equations of the first order.
2. The method of characteristics.
3. Classification of partial differential equations of the second order. Canonical forms.
4. One-dimensional wave equation. Heat equation.
5. Fourier method
6. Parabolic eqaution.
7. Laplace equation.
8. Solving the wave equation for the infinite string. d'Alembert formula.
9. Problems in polar and spherical coordinates. Bessel functions, Legendre polynomials.
10. Harmonic functions and their properties.

Recommended literature:
M. Greguš: Parciálne diferenciálne rovnice (skriptá UK), Bratislava 1983.
J. Kačur: Rovnice matematickej fyziky I, (skriptá UK), Bratislava 1984.
D.G. Zill, M.R. Cullen, Differential Equations with Boundary-Value Problems, 3rd Edition, Brooks/Cole Publishing Company, 1997.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 459

A	B	C	D	E	FX
33,33	29,85	22,66	12,2	1,09	0,87

Lecturers: prof. RNDr. Jaroslav Jaroš, CSc., RNDr. František Jaroš, PhD.
Last change: 16.06.2022
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/2-MXX-132/23	Participation in Empirical Research

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 7.

Educational level: I., I.II., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 202

A	B	C	D	E	FX
89,6	1,49	1,49	0,0	2,97	4,46

Lecturers: Mgr. Xenia Daniela Poslon, PhD.

Last change: 06.09.2023

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/2-MXX-132/23	Participation in Empirical Research

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 8.

Educational level: I., I.II., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 202

A	B	C	D	E	FX
89,6	1,49	1,49	0,0	2,97	4,46

Lecturers: Mgr. Xenia Daniela Poslon, PhD.

Last change: 06.09.2023

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-PMS-135/00	Pensions and Pension Funds

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 2., 4.

Educational level: II.

Prerequisites:

Course requirements:
During the semester, the student can get 50% of the assessment for one presentation. The final oral exam has a weight of 50%.
Grade thresholds: A: at least 90.00%; B: 89.99% – 80.00%; C: 79.99% – 70.00%; D: 69.99% – 60.00%; E: 59.99% – 50.00%; Fx: 49.99% – 0.00%.
Scale of assessment (preliminary/final): Practical work during semester 50% / final exam 50%.

Learning outcomes:
After completing the course, the student will know the basic principles and functions of pension schemes. The student will get acquainted with the pension system of the Slovak Republic and old-age pension schemes of some other countries of the world. The student will be able to valuate assets and liabilities of various types of pension systems, such as defined benefit (DB) schemes and defined contribution (DC) schemes.

Class syllabus:
Three pillars of pension system: compulsory, supplementary, personal. Pension system in Slovakia. The pay-as-you-go system, funded pension scheme. Defined benefit (DB) plans and defined contribution (DC) plans. Benefits not depending on previous earnings, depending on average salary or last salaries. One-time lump sum death benefit. Transfers. Funding plans. Pension funds investment.

Recommended literature:
Penze: kvantitativní přístup / Tomáš Cipra, Praha : Ekopress, 2012;
Pensions at a Glance 2019 / OECD and G20 Indicators, Paris : OECD Publishing, 2019; https://doi.org/10.1787/b6d3dcfc-en;
An Introduction to Pension Schemes / E. M. Lee, London : Institute and Faculty of Actuaries, 1986;
study materials of lecturers.

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 84

A	B	C	D	E	FX
65,48	19,05	8,33	0,0	5,95	1,19

Lecturers: doc. Mgr. Igor Melicherčík, PhD., Mgr. Gábor Szűcs, PhD.

Last change: 12.12.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-110/00	Physical Education and Sport (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 7.

Educational level: I.II., II.

Prerequisites:

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

Learning outcomes:

Class syllabus:
Practicing of the students´ game skills in collective sports: basketball, volleyball, football, floorball and hockey. Mastering of the basic technique of a particular sport discipline in other sports. In paddling, basic training on still and slightly flowing water. Development of coordination skills, improvement of articular mobility and cardiovascular system.

Recommended literature:

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 2007

A	B	C	D	E	FX
97,41	0,6	0,1	0,0	0,0	1,89

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek, PhD., Mgr. Tomáš Lovecký, Mgr. Martina Maheľová, PaedDr. Lucia Ondrušová

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 8.

Educational level: I.II., II.

Prerequisites:

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

Learning outcomes:

Class syllabus:
Practicing of offensive and defensive game combinations and playing with modified rules in collective sports such as basketball, volleyball, football, floorball, hockey. Command of elements of higher difficulty in locomotion skills (swimming - crawl stroke, breast stroke, butterfly stroke, trampoline jumping and aerobics – practicing of areobics compositions, bodybuilding – development of the main muscle groups, paddling on running water. Testing of the level of physical fitness and coordination skills.

Recommended literature:

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 1797

A	B	C	D	E	FX
98,44	0,33	0,06	0,06	0,06	1,06

Lecturers: Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Branislav Nedbálek, PhD., PaedDr. Mikuláš Ortutay, Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký, Mgr. Martina Maheľová, PaedDr. Lucia Ondrušová

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-210/00	Physical Education and Sport (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3., 9.

Educational level: I.II., II.

Prerequisites:

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

Learning outcomes:

Class syllabus:
To improve offensive and defensive game combinations in collective sports. Practicing of tactical and technical elements in individual sports. Compensatory exercises to correct wrong body posture. Stretching. Competition rules in sport disciplines.

Recommended literature:

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 1525

A	B	C	D	E	FX
98,36	0,39	0,07	0,0	0,07	1,11

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek, PhD., Mgr. Tomáš Lovecký, Mgr. Martina Maheľová, PaedDr. Lucia Ondrušová

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-220/00	Physical Education and Sport (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4., 10.

Educational level: I.II., II.

Prerequisites:

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

Learning outcomes:

Class syllabus:
Sport training for Faculty Championships in a selected sport with modified rules. Selection of sport-talented students into teams of the Faculty Sport League, University League of Bratislava Faculties, and participation in sport events of the Faculty and University.

Recommended literature:

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 1267

A	B	C	D	E	FX
98,34	0,39	0,08	0,08	0,08	1,03

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Branislav Nedbálek, PhD., Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký, Mgr. Martina Maheľová, PaedDr. Lucia Ondrušová

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-240/22	Practice

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

Number of credits: 4

Recommended semester: 3.

Educational level: II.

Prerequisites:

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

Learning outcomes:
The student has an opportunity to evaluate the acquired knowledge and skills in real practice from the perspective of the manager at various levels of management directly in practice in a real work environment. By completing this course, the student will become more adaptable in the labor market directly in the real work environment of his field of study.

Class syllabus:
At the beginning of the semester, the student chooses from the possibilities of internships with specific employers, offering the possibility of internships related to the study program the Managerial Mathematics. Or the student will find the subject for practice independently with the condition of approval by the guarantor of the study program. The internship and its content should correspond with the student's field of study to such an extent that it is possible to use the acquired knowledge and skills not only to enrich the study, but also in the diploma thesis and to integrate into daily working routine.

Recommended literature:
Individual depend on the students need

Languages necessary to complete the course:
Slovak, English (or another language depending on the student's language skills and preferences)

Notes:
The internship certificate has a standardized form, this form is available to both students and employers providing internships.

Past grade distribution
Total number of evaluated students: 53

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

Lecturers: doc. PhDr. Daniela Majerčáková, PhD., MBA

Last change: 15.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KMANM/2-MMN-240/23	**Course title:** Practice (2)
Educational activities: **Type of activities:** practice **Number of hours:** **per week:** **per level/semester:** 4t **Form of the course:** on-site learning	
Number of credits: 4	
Recommended semester: 4.	
Educational level: II.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: The student has an opportunity to evaluate the acquired knowledge and skills in real practice from the perspective of the manager at various levels of management directly in practice in a real work environment. By completing this course, the student will become more adaptable in the labor market directly in the real work environment of his field of study.	
Class syllabus: At the beginning of the semester, the student chooses from the possibilities of internships with specific employers, offering the possibility of internships related to the study program the Managerial Mathematics. Or the student will find the subject for practice independently with the condition of approval by the guarantor of the study program. The internship and its content should correspond with the student's field of study to such an extent that it is possible to use the acquired knowledge and skills not only to enrich the study, but also in the diploma thesis and to integrate into daily working routine.	
Recommended literature: Individual depend on the students need	
Languages necessary to complete the course: Slovak, English (or another language depending on the student's language skills and preferences)	
Notes: The internship certificate has a standardized form, this form is available to both students and employers providing internships.	

Past grade distribution Total number of evaluated students: 52					
A	B	C	D	E	FX
96,15	0,0	0,0	0,0	0,0	3,85
Lecturers: doc. PhDr. Daniela Majerčáková, PhD., MBA					
Last change: 24.01.2024					
Approved by: prof. RNDr. Michal Fečkan, DrSc.					

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-PMS-222/22	Programming in SAS

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 3.

Educational level: II.

Prerequisites:

Antirequisites: FMFI.KAMŠ/2-PMS-222/15

Course requirements:
Preliminary semester evaluation: independent practice (80%), final exam (20%);
Approximate grade thresholds: A 91%, B 81%, C 71%, D 61%, E 51%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Students will learn the basics of SAS programming language and will be able to access and process databases of various formats.

Class syllabus:
Basics of SAS language, creating SAS data from various sources (e.g. text files), data processing and reporting, data concatenation, data merging, numeric and text functions, identification of syntax and logic errors, basic SAS procedures.

Recommended literature:
SAS Institute Inc. 2001: Step-by-Step Programming with Base SAS® Software, Cary, NC: SAS Institute Inc.

Languages necessary to complete the course:
slovak, english

Notes:
Enrollment limit: 25 students

Past grade distribution
Total number of evaluated students: 75

A	B	C	D	E	FX
56,0	33,33	6,67	0,0	4,0	0,0

Lecturers: Mgr. Jozef Kováč, PhD.

Last change: 16.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 7.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
Basic communication in Russian, developing other Russian language skills - listening comprehension, reading and writing.

Class syllabus:
To master the fundamentals of general Russian. The language level is A1.
Learning the Cyrillic (Russian) alphabet, gaining basic language competence, building up skills and confidence in dealing with unfamiliar authentic and semi-authentic texts.
The subject provides a course in Russian language for beginners.

Recommended literature:
The textbook: : Точка Ру A1 (Ольга Долматова, Екатерина Новачац), pracovné karty Падежи 1 (Л.С. Безкоровайная, В.Е. Штыленко).

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 746

A	B	C	D	E	FX
57,77	16,62	11,13	4,16	1,74	8,58

Lecturers: Viktoria Mirsalova

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 8.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
Basic communication in Russian, developing other Russian language skills - listening comprehension, reading and writing.

Class syllabus:
To master the fundamentals of general Russian.
Learning the Cyrillic (Russian) alphabet, gaining basic language competence, building up skills and confidence in dealing with unfamiliar authentic and semi-authentic texts.
The subject continues the program of Russian language (1) and provides a course of Russian for beginners.

Recommended literature:
Textbook: Точка Ру A1 (Ольга Долматова, Екатерина Новачац), pracovné karty Падежи 1 (Л.С. Безкоровайная, В.Е. Штыленко).

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 435

A	B	C	D	E	FX
63,91	16,09	8,97	3,91	0,92	6,21

Lecturers: Viktoria Mirsalova

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3., 9.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
Basic communication in Russian, developing other Russian language skills - listening comprehension, reading and writing.

Class syllabus:
Learning the handwritten Russian (Russian Cursive Cyrillic), developing further language skills, gaining knowledge of Russian culture, history and way of life, pre-intermediate to intermediate grammar and vocabulary.
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:
Точка Ру A2 (Ольга Долматова, Екатерина Новачац) a Short Stories in Russian (Olly Richards, Alex Rowlings)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 215

A	B	C	D	E	FX
68,84	17,67	9,3	2,33	0,0	1,86

Lecturers: Viktoria Mirsalova

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4., 10.

Educational level: I., I.II., II.

Prerequisites:

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

Learning outcomes:
Learning the handwritten Russian (Russian Cursive Cyrillic), developing further language skills, gaining knowledge of Russian culture, history and way of life, pre-intermediate to intermediate grammar and vocabulary.

Class syllabus:
Learning the handwritten Russian (Russian Cursive Cyrillic), developing further language skills, gaining knowledge of Russian culture, history and way of life, pre-intermediate to intermediate grammar and vocabulary.
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:
Точка Ру A2 (Ольга Долматова, Екатерина Новачац) a Short Stories in Russian (Olly Richards, Alex Rowlings)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 153

A	B	C	D	E	FX
74,51	14,38	7,19	2,61	0,65	0,65

Lecturers: Viktoria Mirsalova

Last change: 20.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-171/20	Slovak Language for Foreign Students (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 7.

Educational level: I., I.II., II., III.

Prerequisites:

Course requirements:
tests
Course prerequisites:
https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
This course is aimed for foreign students to learn the fundamentals of the Slovak language with the focus on basic communication as well as all other language skills- listening comprehension,reading and writing.

Class syllabus:
The sylabus is targeted at the comprehension of the basics of the Slovak language for the absolute beginners (A1).

Recommended literature:
Krížom- Krážom Slovenčina 1, additional material to further support the covered topics.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 155

A	ABS	B	C	D	E	FX	NEABS
40,65	21,29	7,1	4,52	0,65	1,29	21,29	3,23

Lecturers: Mgr. Aneta Barnes

Last change: 21.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-172/20	Slovak Language for Foreign Students (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2., 8.

Educational level: I., I.II., II., III.

Prerequisites:

Course requirements:
tests
Course prerequisites:
https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
This course is aimed for foreign students to learn the fundamentals of the Slovak language with the focus on basic communication as well as all other language skills- listening comprehension,reading and writing.

Class syllabus:
The sylabus is targeted at the comprehension of the basics of the Slovak language for the absolute beginners (A1) and this course is a follow up course to the Slovak language course 1.

Recommended literature:
Krížom- Krážom Slovenčina 1, additional material to further support the covered topics

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 87

A	ABS	B	C	D	E	FX	NEABS
63,22	18,39	1,15	1,15	0,0	0,0	9,2	6,9

Lecturers: Mgr. Aneta Barnes

Last change: 21.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-271/20	Slovak Language for Foreign Students (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3., 9.

Educational level: I., I.II., II., III.

Prerequisites:

Course requirements:
tests
Course prerequisites:
https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
This course is aimed for foreign students to better comprehend all the language skills important to enable correct usage of the Slovak language – listening comprehension, reading, writing and speaking.

Class syllabus:
The sylabus is targeted at the comprehension of all the language skills of the Slovak language , and it is a follow up course to the Slovak language course 2.

Recommended literature:
Krížom-Krážom Slovenčina 2, additional material to further support the covered topics.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 32

A	ABS	B	C	D	E	FX	NEABS
59,38	3,13	18,75	3,13	3,13	0,0	12,5	0,0

Lecturers: Mgr. Aneta Barnes

Last change: 21.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-272/20	Slovak Language for Foreign Students (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4., 10.

Educational level: I., I.II., II., III.

Prerequisites:

Course requirements:
tests
Course prerequisites:
https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezneho-hodnotenia-aj1aj2aj3-ostatne-kurzy/
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
This course is aimed for foreign students to better comprehend all the language skills important to enable correct usage of the Slovak language – listening comprehension, reading, writing and speaking.

Class syllabus:
The sylabus is targeted at the comprehension of all the language skills of the Slovak language , and it is a follow up course to the Slovak language course 3.

Recommended literature:
Krížom-Krážom Slovenčina 2, additional material to further support the covered topics.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 25

A	ABS	B	C	D	E	FX	NEABS
84,0	0,0	4,0	4,0	0,0	0,0	8,0	0,0

Lecturers: Mgr. Aneta Barnes

Last change: 21.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-115/17	Sports in Natur (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., 7.

Educational level: I.II., II.

Prerequisites:

Course requirements:
Grades: A 90%, B 80%, C 70%, D 60%, E 50%
The condition for the award of 1 or 2 credits is the completion of a multi-day course in its full scope, or the completion of one-day courses in the scope of 4 days. Candidates can apply to the leaders of individual courses. From the presented offer of courses, you can choose the one that suits your interests, abilities and deadlines.

Learning outcomes:
Acquisition and development of basic motor skills and abilities in selected sports: skiing and snowboarding. Mastering the correct technique of performing individual movements, which are necessary for skiing and snowboarding.

Class syllabus:
The student can sign up for the outdoor sports courses offered by the department: skiing, snowboarding. The lessons in the courses are focused on the development of basic and special movement skills and mastering the techniques needed for the sports.

Recommended literature:

Languages necessary to complete the course:
Slovak

Notes:
KTVŠ does not rent ski equipment.

Past grade distribution
Total number of evaluated students: 186

A	B	C	D	E	FX
98,92	0,0	0,0	0,0	0,0	1,08

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

Last change: 16.06.2022
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/2-MXX-116/18	Sports in Natur (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., 8.

Educational level: I.II., II.

Prerequisites:

Course requirements:
Grades: A 90%, B 80%, C 70%, D 60%, E 50%.
The condition for the award of 1 or 2 credits is the completion of a multi-day course in its full scope, or the completion of one-day courses in the scope of 4 days. Candidates can apply to the leaders of individual courses. From the presented offer of courses, you can choose the one that suits your interests, abilities and deadlines.

Learning outcomes:
Creating a positive and lasting relationship with physical activity. Acquisition and mastery of basic motor skills and abilities in outdoor sports: windsurfing, beach volleyball, water tourism - river rafting, hiking and other sports according to interest. Training and improving the technique needed for the sports.

Class syllabus:
The student can sign up for the outdoor sports courses offered by the department: water tourism - river rafting, windsurfing, beach volleyball, hiking and other hobby sports. The lessons in the courses are focused on the development of basic and special movement skills and, mastering the techniques needed for the sports.

Recommended literature:

Languages necessary to complete the course:
Slovak

Notes:
KTVŠ will provide sports equipment.

Past grade distribution
Total number of evaluated students: 109

A	B	C	D	E	FX
95,41	0,0	0,0	0,0	0,0	4,59

Lecturers: Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, PaedDr. Mikuláš Ortutay, Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký
Last change: 16.06.2022
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-PMS-129/22	Stochastic Optimization Methods

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1., 3.

Educational level: I., II.

Prerequisites:

Course requirements:
Evaluation based on: project (teaching period)
Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
The students understand the algorithmic principles of a variety of optimization methods, mostly heuristics with stochastic elements, applicable to the problems of discrete optimization as well as non-convex continuous optimization.

Class syllabus:
A brief general overview of optimization. Various types of optimization problems and optimization algorithms. Construction of the initial solution. The basic heuristic optimization algorithms. Covariance matrix adaptation. Simulated annealing. Algorithm Nelder-Mead. Genetic algorithms. Differential evolution. Particle swarm optimization. Basic principles of constrained optimization.

Recommended literature:
Luke S: Essentials of Metaheuristics, Lulu, 2013; Study materials of the lecturer.

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 237

A	B	C	D	E	FX
69,62	16,88	6,75	3,38	1,27	2,11

Lecturers: prof. Mgr. Radoslav Harman, PhD.

Last change: 10.03.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI-FM.KSP/2-MMN-204/22	Strategic Management

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 26 / 26
Form of the course: on-site learning

Number of credits: 7

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 423

A	B	C	D	E	FX
33,33	29,55	17,26	10,64	8,27	0,95

Lecturers: doc. Mgr. Zuzana Papulová, PhD., Mgr. Andrea Gažová, PhD.

Last change: 12.09.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/2-MMN-380/22	Time Series Analysis

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1.

Educational level: II.

Prerequisites:

Course requirements:
Preliminary semester evaluation: homework (75%), exam (25%);
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, students will be able to decompose the time series, test its properties and construct short-term forecasts. They will know the basics of modern methods of modeling and forecasting time series using ARIMA models.

Class syllabus:
Decomposition of time series. Modelling of the trend by mathematical functions. The moving average method. Exponential smoothing. Seasonal components. Tests of randomness. The ARIMA models and their autocorrelation properties. The Box - Jenkins methodology, identification and forecasts in ARIMA models.

Recommended literature:
Cipra T.: Analýza časových řad s aplikacemi v ekonomii, Praha: Státní nakladatelství technické literatury, 1986;
Shumway R. H., Stoffer D.S.: Time Series Analysis and Its Applications With R Examples, New York: Springer 2011;

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 517

A	B	C	D	E	FX
39,26	23,4	16,83	12,19	7,16	1,16

Lecturers: Mgr. Jozef Kováč, PhD.

Last change: 21.06.2022
Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KMANM/2-MMN-142/24	**Course title:** Trends in Digital Marketing
Educational activities: **Type of activities:** practicals **Number of hours:** **per week:** 2 **per level/semester:** 26 **Form of the course:** on-site learning	
Type, volume, methods and workload of the student - additional information 0/2	
Number of credits: 3	
Recommended semester: 2.	
Educational level: II.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes: Practical knowledge in the field of digital marketing	
Class syllabus: 1. Area: DEVELOPMENT AND BASICS OF DIGITAL MARKETING • Beginnings, present and future of digital marketing • Global trends + Slovak market trends • Ways of using digital marketing • Differences between standard marketing and online marketing • Questions and answers students + lecturer Tool: IAB monitor 2. Area: STRATEGY AND PLANNING • Basic strategic approaches that precede planning digital campaigns • Definition of SMART goals • Building brand awareness • Clear setting of measurable goals • Analysis of target groups • Affinity index • Questions and answers students + lecturer Tool: Data Analyzer, Similar web, audience origin, 3. Area: DISPLAY ADVERTISING, VIDEO ADVERTISING, MOBILE MARKETING • Display advertising as one of the strongest digital channels of online advertising • Overview of the digital market in Slovakia (publishers, websites) • Types of online formats • Difference between classic and programmatic purchase of display advertising • Mobile devices in display advertising • Display advertising challenges • • Types and formats of video advertising • Websites with video content • Shopping models • Video advertising effectiveness • Content creators – vlogging, youtubers • VOD (video on demand) and branded content, Hybrid television • • Mobile marketing effectiveness • Website optimization for mobile devices • Mobile applications • Mobile website vs. Responsive web design • Internet of things (IoT) • Mobile analytics • Forms of mobile advertising, standards • Other forms of mobile advertising and technologies, QR codes, NFC, etc. • Questions and answers students + lecturer Tool: Google Ads, Spotify, CTV, Archives 7. Course: PROGRAMMATIC PURCHASING / REAL TIME BIDDING • Basic concepts (DSP, SSP, DMP, AdExchange, etc.) • Differences between classic and automated display advertising purchases • Statistics of spending on	

online advertising in Slovakia • Mechanisms and operations of programmatic purchases • Bidding • Evaluation and measurement of campaign effectiveness • Questions and answers students + lecturer Tool: Platforms 8. Course: WEB AND APP ANALYTICS • Basic concepts and concepts Web analytics + APP analytics • Evaluation of online activities • Questions and answers students + lecturer Tool: web + app analytics tools and a demonstration of working with data 9. Course: USE OF STATISTICAL METHODS IN MARKETING RESEARCH Students will learn to use the already known methods of statistical hypothesis testing, regression and correlation analysis, analysis of variance, cluster analysis and others, when solving various tasks in marketing research. They will become familiar with various methods based on the reduction of object space, such as multidimensional scaling or correspondence analysis. These are mainly visual techniques, the results of which are depicted using a perception map or correspondence map. 10. Topic: GAMING IN MARKETING Marketing in gaming and advertising purchasing options in the gaming space Tool: Digital turbine 11. Topic: E-COMMERCE • Basic terms and concepts • E-commerce market in Slovakia • Trends and tendencies • Oil and Showrooming • M-commerce • E-commerce and other areas of internet marketing • Legal aspects • Questions and answers students + lecturer • demonstrations in platforms - merchant, dyn, remarketing, meta, snap.... Tool: Mergado, heureka, shoptet, wordpress + ad platforms 12. Topic: QUESTIONNAIRE SURVEYS AND DATA COLLECTION • Data collection methods • survey methodology • questionnaire design • question types and answer lists • testing Tool: research examples and case studies, practical tasks, tips 4. Topic: SEO and CONTENT MARKETING • Basics of marketing in search engines • Basic terms • Factors influencing search / search traffic • Google algorithm • Differences between on-page and off-page search optimization techniques • Questions and answers students + lecturer Native advertising • Content marketing effectiveness • Questions and answers students + lecturer Tool: SEO tools, examples of working with data 5. Area: SEARCH AND AI IN MARKETING • Basics of marketing in search engines • Basic concepts • Factors influencing search / search traffic • Google algorithm • Questions and answers students + lecturer Tool: Search in platforms, AI tools 6. Area: SOCIAL MEDIA + INFLUENCER MARKETING • Basic concepts • Social media platforms • Social media advertising • Social media marketing effectiveness • Effectiveness • Questions and answers students + lecturer • Origin and development of influencer marketing (IM) • How IM works • Tools for managing and analyzing influencers • Trends and tendencies • Questions and answers students + lecturer Tool: Platforms, IPI

Recommended literature:

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 3

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

Lecturers: Ing. Matej Kolarovský, Ing. Laura Dóci, Ing. Ondrej Dúžik, PhD.

Last change: 21.01.2025

Approved by: prof. RNDr. Michal Fečkan, DrSc.

COURSE DESCRIPTION

Academic year: 2026/2027

University: Comenius University Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/2-MMN-140/15	Unconventional Application of Mathematical Analysis

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 26
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: II.

Prerequisites:

Course requirements:
Continuous assessment: individual work, presentation on a given topic.
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
The purpose of the course is to present to students some uncommon applications of modern mathematical analysis, mainly in biology, medicine and social sciences.

Class syllabus:
1. Discrete and continuous models of interactions of biological populations (competitive systems, system "predator-prey", symbiotic systems).
2. Mathematical model of the detection of diabetes.
3. Discrete dynamical systems of mathematical genetics.
4. Epidemic models and dynamics of infectious diseases.

Recommended literature:

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 86

A	B	C	D	E	FX
93,02	6,98	0,0	0,0	0,0	0,0

Lecturers: prof. RNDr. Jaroslav Jaroš, CSc.

Last change: 16.06.2022

Approved by: prof. RNDr. Michal Fečkan, DrSc.