

Course descriptions

TABLE OF CONTENTS

1. 2-PMS-213/00	Bayesian Statistics.....	3
2. 2-PMS-136/20	Biostatistics.....	4
3. 2-PMS-130/10	Categorical Data Analysis.....	6
4. 2-PMS-116/19	Cluster analysis and data classification.....	8
5. 2-PMS-109/15	Computer Statistics.....	10
6. 2-PMS-142/19	Data Dimensionality Reduction.....	12
7. 2-EFM-113/18	Databases and Data Analysis.....	13
8. 2-PMS-108/19	Design of experiments.....	14
9. 2-EFM-237/15	Digital Signal Processing.....	16
10. 2-PMS-991/15	Diploma Thesis (state exam).....	17
11. 2-MXX-130/21	Elements of AI.....	18
12. 2-MXX-130/21	Elements of AI.....	20
13. 1-MXX-233/13	English Conversation Course (1).....	22
14. 1-MXX-234/13	English Conversation Course (2).....	24
15. 2-EFM-153/17	Finance and Insurance in Practice (1).....	26
16. 2-EFM-154/17	Finance and Insurance in Practice (2).....	28
17. 1-MXX-141/00	French Language (1).....	30
18. 1-MXX-142/00	French Language (2).....	31
19. 1-MXX-241/00	French Language (3).....	32
20. 1-MXX-242/00	French Language (4).....	33
21. 1-MXX-151/00	German Language (1).....	34
22. 1-MXX-152/00	German Language (2).....	35
23. 1-MXX-251/00	German Language (3).....	36
24. 1-MXX-252/00	German Language (4).....	37
25. 2-PMS-915/17	Individual Work on Diploma Thesis.....	38
26. 2-MAT-114/15	Integral Transforms and Special Functions.....	39
27. 2-PMS-118/10	Markov Processes (1).....	40
28. 2-PMS-119/15	Markov Processes(2).....	42
29. 2-PMS-115/10	Multivariate Statistical Analysis.....	43
30. 2-PMS-212/15	Nonparametric Statistics.....	45
31. 2-PMS-135/00	Pensions and Pension Funds.....	47
32. 2-MXX-110/00	Physical Education and Sport (1).....	49
33. 2-MXX-120/00	Physical Education and Sport (2).....	50
34. 2-MXX-210/00	Physical Education and Sport (3).....	51
35. 2-MXX-220/00	Physical Education and Sport (4).....	52
36. 2-EFM-152/15	Principles of Mathematical Modelling in Science and Engineering.....	53
37. 2-PMS-141/15	Probability Theory.....	55
38. 2-PMS-952/15	Probability and Mathematical Statistics (state exam).....	57
39. 2-PMS-222/15	Programming in SAS.....	58
40. 2-PMS-101/00	Random Processes (1).....	60
41. 2-PMS-102/00	Random Processes (2).....	61
42. 2-PMS-107/15	Regression Models.....	62
43. 2-PMS-220/13	Regression Models with Random Effects.....	64
44. 2-PMS-218/13	Reliability Theory.....	65
45. 1-MXX-161/00	Russian Language (1).....	66
46. 1-MXX-162/00	Russian Language (2).....	67
47. 1-MXX-261/00	Russian Language (3).....	68

48. 1-MXX-262/00	Russian Language (4).....	69
49. 2-EFM-140/19	SQL Databases.....	70
50. 2-EFM-140/19	SQL Databases.....	71
51. 2-EFM-143/17	Selected Actuarial Techniques.....	72
52. 2-PMS-125/00	Seminar in Mathematical Statistics (1).....	74
53. 2-PMS-126/00	Seminar in Mathematical Statistics (2).....	75
54. 2-PMS-121/00	Sequential Methods.....	76
55. 1-MXX-171/20	Slovak Language for Foreign Students (1).....	78
56. 1-MXX-172/20	Slovak Language for Foreign Students (2).....	79
57. 1-MXX-271/20	Slovak Language for Foreign Students (3).....	80
58. 1-MXX-272/20	Slovak Language for Foreign Students (4).....	81
59. 2-MXX-115/17	Sports in Natur (1).....	82
60. 2-MXX-116/18	Sports in Natur (2).....	84
61. 2-PMS-221/14	Statistical methods in clinical trials.....	86
62. 2-PMS-129/10	Stochastic Optimization Methods.....	88
63. 2-PMS-123/10	Stochastic Simulation Methods.....	90
64. 2-PMS-131/17	Survival Analysis.....	91

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-213/00		Course title: Bayesian Statistics			
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: Preliminary semester evaluation: homeworks, test Examination: oral examination Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%					
Learning outcomes: Students will understand roots and modern tools of Bayesian statistics. They will be able to perform calculations based on Bayesian methods for statistical decisions in various situations.					
Class syllabus: Bayes' theorem, statistical decision, Bayesian estimation and hypothesis testing, MCMC methods, conjugate and noninformative priors, Bayesian regression					
Recommended literature: Pázman: Bayesovská štatistika. Pázman: Teória hier a štatistického rozhodovania. Andel: Matematická štatistika.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 187					
A	B	C	D	E	FX
20,32	17,11	25,13	20,32	15,51	1,6
Lecturers: Mgr. Jozef Kováč, PhD., doc. Mgr. Radoslav Harman, PhD.					
Last change: 16.09.2021					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-136/20		Course title: Biostatistics			
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.					
Educational level: II.					
Prerequisites:					
Recommended prerequisites: Multivariate statistical analyses 2-PMS-115; Regression models 2-PMS-107					
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 will gain knowledge about selected statistical methods used in biomedical applications.					
Class syllabus: Fixed and random effects models; Analysis of variance with random effects; Linear models with random effects; Metaanalysis and metaregression; Repeated and longitudinal measurements; Diagnostic tests, sensitivity, specificity and combined measures of accuracy; ROC curves and their characteristics.					
Recommended literature: Gałecki A, Burzykowski T.: Linear mixed-effects model Using R. Springer, New York, NY (2013); Filová L: Biostatistics, study materials of the lecturer, 2021.					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 12					
A	B	C	D	E	FX
50,0	33,33	16,67	0,0	0,0	0,0
Lecturers: doc. Mgr. Lenka Filová, PhD.					

Last change: 09.03.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-130/10	Course title: Categorical Data Analysis
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: 4.	
Educational level: II.	
Prerequisites:	
Course requirements: project (teaching period), written exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50/50	
Learning outcomes: The students understand the principles of modeling of non-numeric data and the maximum likelihood inference in such models. They also realize that many seemingly unrelated classical methods of categorical data analysis are just special cases of a simple and unified approach by means of generalized linear models.	
Class syllabus: 1. Maximum likelihood method in the world of categorical data: the Holy Trinity (Wald test, score test, likelihood ratio test). Corresponding confidence intervals for the binomial parameter (Wald's, Wilson's, Agresti-Coull's, based on the likelihood ratio test). 2. Inference about a vector parameter: the Holy Trinity of tests, the Pearson's chi-squared test and the connection between them, a multinomial example. 3. Contingency table: connection with the multinomial distribution, testing of general hypotheses about the parameters, independence testing. 4. Delta-method: the principle, demonstrations contingency tables in case of inference about odds and odd ratio. 5. Measures of correlation of non-numeric variables (Goodman-Kruskal gamma). 6. Equivalence between the multinomial models of contingency tables and the corresponding Poisson log-linear model. 7. Poisson log-linear model: interpretation of parameters, the saturated model, deviance. 8. Saturated 3-way Poisson log-linear model: interpretation of parameters, visualization using a mosaic plot, interpretation and testing of submodels, confidence intervals for parameters. 9. A test about the odds ratio, the Cochran-Mantel-Haenszel test and the Woolf's test in 3-dimensional 2x2xK contingency tables as tests about submodels of a Poisson log-linear model. 10. Logistic and multinomial regression as special cases of a Poisson log-linear model.	

Recommended literature: Agresti A: Categorical Data Analysis 3rd ed. Wiley 2012.					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 143					
A	B	C	D	E	FX
60,14	23,08	9,09	4,2	3,5	0,0
Lecturers: Mgr. Ján Somorčík, PhD.					
Last change: 11.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-116/19	Course title: Cluster analysis and data classification
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: Evaluation based on: project (teaching period), oral exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50/50	
Learning outcomes: The students understand the principles and practical realization of selected methods of cluster analysis and statistical data classification.	
Class syllabus: Selected multivariate data visualization methods, partitional clustering (k-means, k-medoids, DBSCAN, OPTICS, clustering based on the mixture of Gaussian distributions, spectral clustering), hierarchical clustering, general introduction to the statistical classification methods, Bayes classifier, k nearest neighbors, linear and quadratic discrimination, classification trees and forests, bagging and boosting, support vector machines, multinomial regression as a classification method	
Recommended literature: Izenman A: Modern Multivariate Statistical Techniques: Regression, Classification, and Manifold Learning (Springer Texts in Statistics) 1st ed., 2nd printing 2013; James G, Witten D, Hastie T, Tibshirani R: An Introduction to Statistical Learning: with Applications in R (Springer Texts in Statistics) 2nd ed., Springer 2021; Harman R: Multivariate Statistical Analysis (Selected Lecture Notes), study materials of the lecturer, 2021.	
Languages necessary to complete the course: Slovak, English	
Notes: The knowledge of the software R is recommended. Enrollment limit: 40 students	

Past grade distribution					
Total number of evaluated students: 59					
A	B	C	D	E	FX
61,02	20,34	8,47	0,0	1,69	8,47
Lecturers: doc. Mgr. Radoslav Harman, PhD.					
Last change: 10.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-109/15	Course title: Computer Statistics
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.	
Educational level: II.	
Prerequisites:	
Course requirements: project (teaching period), oral exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 70/30	
Learning outcomes: Students will be able to perform some rather advanced statistical analyses, using the software R.	
Class syllabus: 1. Contingency tables, graphical representation, test of independence, homogeneity test, odds ratio, McNemar's test, Simpson's paradox and the Cochran-Mantel-Haenszel test, Bowker's test, Fisher's exact test. 2. Logistic regression: interpretation of parameters, probability vs. odds, deviance, tests of submodels, Wald tests and confidence intervals, graphical representation, pseudo coefficients of determination, logistic regression as a classifier. 3. Permutation versions of the t-test and ANOVA. 4. Bootstrap: estimation of variation, confidence intervals, application to regression, a demonstration of misuse.	
Recommended literature: Agresti A: Categorical Data Analysis 3rd ed. W Agresti A: Categorical Data Analysis 3rd ed. Wiley 2012; Anděl J: Statistické metody. Matfyzpress 2007.	
Languages necessary to complete the course: Slovak, English	
Notes:	

Past grade distribution					
Total number of evaluated students: 256					
A	B	C	D	E	FX
71,88	18,36	6,25	1,17	1,95	0,39
Lecturers: Mgr. Ján Somorčík, PhD.					
Last change: 11.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-142/19		Course title: Data Dimensionality Reduction			
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.					
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: 55					
A	B	C	D	E	FX
58,18	23,64	10,91	1,82	0,0	5,45
Lecturers: doc. Mgr. Radoslav Harman, PhD., Mgr. Samuel Rosa, PhD.					
Last change: 02.05.2019					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-EFM-113/18		Course title: Databases and Data Analysis			
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: 3					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KAMŠ/2-EFM-113/17					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 145					
A	B	C	D	E	FX
89,66	3,45	4,83	0,69	0,69	0,69
Lecturers: Mgr. Stanislav Sekereš					
Last change: 12.12.2018					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-108/19	Course title: Design of experiments
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:	
Recommended prerequisites: Regression models 2-PMS-107	
Course requirements: Evaluation based on: project (teaching period), oral exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 40/60	
Learning outcomes: The students will learn about basic principles of designing statistical experiments and the optimization of the quality of experiments.	
Class syllabus: Basic principles of designing experiments, block designs, factorial designs, response surface designs, optimal experimental designs for linear models (exact and approximate design, optimality criteria, algorithmic computing of optimal designs), optimal design of experiments for nonlinear models.	
Recommended literature: Dean A, Voss D, Draguljic D: Design and Analysis of Experiments (Springer Texts in Statistics) 2nd ed., Springer 2017; Pázman A, Lacko V: Prednášky z regresných modelov - odhadovanie parametrov strednej hodnoty a štatistická optimalizácia experimentu, Univerzita Komenského 2012.	
Languages necessary to complete the course: Slovak, English	
Notes: Enrollment limit: 20 students	

Past grade distribution					
Total number of evaluated students: 23					
A	B	C	D	E	FX
56,52	13,04	13,04	4,35	8,7	4,35
Lecturers: doc. Mgr. Radoslav Harman, PhD., doc. Mgr. Lenka Filová, PhD.					
Last change: 09.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-EFM-237/15		Course title: Digital Signal Processing			
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: 4.					
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: 73					
A	B	C	D	E	FX
69,86	17,81	5,48	1,37	0,0	5,48
Lecturers: Mgr. Miriam Kristeková, PhD.					
Last change: 02.06.2015					
Approved by:					

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-991/15	Course title: Diploma Thesis
Number of credits: 15	
Recommended semester: 3., 4..	
Educational level: II.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAI/2-MXX-130/21		Course title: 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.					
Educational level: II.					
Prerequisites:					
Course requirements: Passing the online course https://course.elementsofai.com/ (in English 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: 37					
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:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAI/2-MXX-130/21		Course title: 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.					
Educational level: II.					
Prerequisites:					
Course requirements: Passing the online course https://course.elementsofai.com/ (in English 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: 37					
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:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-233/13		Course title: English Conversation Course (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1., 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests, presentations, essays Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezhneho-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: 215					
A	B	C	D	E	FX
67,44	13,02	6,51	1,86	1,4	9,77
Lecturers: Mgr. Aneta Barnes					

Last change: 21.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-234/13		Course title: English Conversation Course (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2., 4.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests, oral presentations, essays Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezhneho-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: 146					
A	B	C	D	E	FX
77,4	12,33	3,42	1,37	0,0	5,48
Lecturers: Mgr. Aneta Barnes					

Last change: 21.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-EFM-153/17		Course title: Finance and Insurance in Practice (1)			
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:					
Course requirements: During the semester the student can obtain 100% of points, for active participation in seminars (80%), solving tasks during seminars (20%), and possibly for additional individual practical work. Grade thresholds: A: 100.00% – 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 the basics of work in the financial and insurance business. Student should also learn about the roles of the actuary, risk manager and financial analyst.					
Class syllabus: Basic financial and insurance segments. Banks and insurance companies - joint-stock companies and their legislative background. The role of financial analysts, risk managers and actuaries in banks, insurance companies and in other financial institutions. International professional qualification of actuaries, stages in actuarial qualification, the career of an actuary. Profession of Actuary in Slovakia and globally. Professional software used in financial and insurance practice.					
Recommended literature: Poist'ovníctvo / Anna Majtánová a kolektív. Bratislava : Wolters Kluwer (Iura Edition), 2009; Lecturer's notes and handouts.					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 70					
A	B	C	D	E	FX
78,57	15,71	1,43	1,43	1,43	1,43

Lecturers: Mgr. Gábor Szűcs, PhD.
Last change: 16.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-EFM-154/17		Course title: Finance and Insurance in Practice (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: 2., 4.					
Educational level: II.					
Prerequisites:					
Course requirements: During the semester the student can obtain 100% of points, for active participation in seminars (80%), solving tasks during seminars (20%), and possibly for additional individual practical work. Grade thresholds: A: 100.00% – 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 the basics of work in the financial and insurance business. Student should also learn about the roles of the actuary, risk manager and financial analyst.					
Class syllabus: Basic financial and insurance segments. Actuarial model development in life and non-life insurance. Financial modelling. The role of financial analysts, risk managers and actuaries in banks, insurance companies and in other financial institutions. Professional requirements for financial analysts, risk managers and actuaries. Professional software used in financial and insurance practice.					
Recommended literature: Poist'ovnictvo / Anna Majtánová a kolektív. Bratislava : Wolters Kluwer (Iura Edition), 2009; Lecturer's notes and handouts.					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 54					
A	B	C	D	E	FX
75,93	11,11	9,26	1,85	0,0	1,85

Lecturers: Mgr. Gábor Szűcs, PhD.
Last change: 16.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-141/00		Course title: French Language (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., 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: 435					
A	B	C	D	E	FX
45,75	20,0	18,85	8,74	2,3	4,37
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-142/00		Course title: French Language (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes:					
Class syllabus: 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: 265					
A	B	C	D	E	FX
38,87	25,28	19,62	10,19	2,64	3,4
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KJP/1-MXX-241/00		Course title: French Language (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., 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: 104					
A	B	C	D	E	FX
39,42	27,88	21,15	6,73	0,96	3,85
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-242/00		Course title: French Language (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., 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: 74					
A	B	C	D	E	FX
41,89	32,43	17,57	2,7	1,35	4,05
Lecturers: Mgr. Ľubomíra Kožehubová					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-151/00		Course title: German Language (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., 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: 734					
A	B	C	D	E	FX
36,1	27,25	19,62	8,99	2,72	5,31
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-152/00		Course title: German Language (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: 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: 480					
A	B	C	D	E	FX
36,04	20,21	20,83	13,13	3,33	6,46
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-251/00		Course title: German Language (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., 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: 165					
A	B	C	D	E	FX
41,21	25,45	20,61	6,67	2,42	3,64
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-252/00		Course title: German Language (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., 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: 90					
A	B	C	D	E	FX
42,22	24,44	12,22	12,22	3,33	5,56
Lecturers: Mgr. Alexandra Maďarová, Mgr. Simona Tomášková, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-915/17		Course title: Individual Work on Diploma Thesis			
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: 12					
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: 90					
A	B	C	D	E	FX
76,67	17,78	3,33	1,11	1,11	0,0
Lecturers:					
Last change:					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-MAT-114/15		Course title: Integral Transforms and Special Functions			
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: midterm test, final exam Scale of assessment (preliminary/final): 33/67					
Learning outcomes: Students will learn methods of integral transforms and basic properties of some special functions from the point of view of applications in solving differential equations.					
Class syllabus: Fourier transform, Laplace transform, Bessel functions, Legendre polynomials and their applications.					
Recommended literature: Mathematical physics: Basic equations and special functions / Vasilij Jakovlevič Arsenin ; in Slovak, translated by Jozef Kačur. Bratislava : Alfa, 1977, Fourier series and integral transforms / Allan Pinkus, Samy Zafrany. Cambridge : Cambridge University Press, 1997					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 33					
A	B	C	D	E	FX
42,42	27,27	6,06	3,03	6,06	15,15
Lecturers: prof. RNDr. Marek Fila, DrSc.					
Last change: 12.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-118/10		Course title: Markov Processes (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: Preliminary semester evaluation: test and homeworks Examination: written examination Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%					
Learning outcomes: After completing the course the student will master elementary discrete time Markov chains models. He will be able to classify states of a Markov chain and calculate stationary probability distributions.					
Class syllabus: Markov property, transition probabilities, transition matrix, Chapman Kolmogorov equation, irreducibility of a chain. Classification of states, recurrent states, transient states, null recurrent states and positive recurrent states, periodicity. Existence of stationary distribution, ergodic distribution, necessary and sufficient conditions for ergodicity. Random walks, branching processes, absorption probabilities, mean time to absorption. Markov reward chains algorithms and Markov Chain Monte Carlo.					
Recommended literature: Kalas, J: Markovove reťazce, skriptá MFF UK Norris, J.R.: Markov chains (1998) Ross, S.M.: Introduction to probability models (2006)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 245					
A	B	C	D	E	FX
22,45	22,04	26,53	20,41	7,35	1,22
Lecturers: doc. RNDr. Katarína Janková, CSc., doc. Mgr. Pavol Bokes, PhD., Candan Çelik, PhD.					

Last change: 02.05.2017
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-119/15		Course title: Markov Processes(2)			
Educational activities: Type of activities: lecture / practicals Number of hours: per week: 2 / 1 per level/semester: 26 / 13 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 2.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes: After completing the course students will know properties of homogeneous Markov chains with continuous time. They will be able to use models based on these chains.					
Class syllabus: Markov property for continuous time chains, probabilities of transition, initial distribution, Chapman Kolmogorov equation. Forces of transition and their properties, backward and forward systems of Kolmogorov differential equations. Stationary and ergodic distribution of the chain. Models of linear growth, birth and death chains, Poisson process. Characterization of processes using jump chain and holding times. Queueing systems: M/M/n, M/M/infinity. Imbedded chain technique for M/G/1. Pollaczek Chinchin formula.					
Recommended literature: Janková, K., Kilianová, S., Brunovský, P., Bokes, P.: Markovove reťazce a ich aplikácie. Epos 2014. Norris, J.:Markov Chains.Cambridge University Press 1997.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 92					
A	B	C	D	E	FX
26,09	15,22	28,26	22,83	5,43	2,17
Lecturers: doc. RNDr. Katarína Janková, CSc., doc. Mgr. Pavol Bokes, PhD., Candan Çelik, PhD.					
Last change: 20.02.2018					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-115/10		Course title: Multivariate Statistical 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: 5					
Recommended semester: 1.					
Educational level: II.					
Prerequisites:					
Course requirements: Evaluation based on: test (teaching period, 60%), oral exam (40%) Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 60/40					
Learning outcomes: The students will have both theoretical and practical knowledge of the most used methods of multivariate statistical analyses.					
Class syllabus: Multivariate normal distribution and conditional distributions, Wishart distribution and Cochran theorem, Hotelling distribution, Wilks distribution, copulas, testing the hypotheses on parameters of the multivariate normal distribution, multivariate linear model, multivariate regression analysis, multivariate analysis of variance with one and two factors, covariance analysis, profile analysis, repeated measurements.					
Recommended literature: Härdle WK, Simar L: Applied multivariate statistical analysis, Springer, 2012; Härdle WK, Hlávka Z: Multivariate statistics: Exercises and solutions. Springer, 2007; Filová L, Szűcs G: Viacrozmerné štatistické analýzy, study materials of the lecturer, 2021.					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 333					
A	B	C	D	E	FX
35,44	22,22	22,22	13,21	5,41	1,5
Lecturers: doc. Mgr. Lenka Filová, PhD.					

Last change: 24.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-212/15	Course title: Nonparametric Statistics
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: 4.	
Educational level: II.	
Prerequisites:	
Course requirements: written exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Students are able to apply basic nonparametric methods to real data. They also understand the principles and the mathematical background of these methods.	
Class syllabus: Sign test and a confidence interval for the true median. Wilcoxon signed rank test, Hodges-Lehmann estimator of location and the corresponding confidence interval. Sign test and Wilcoxon test for paired data. Wilcoxon rank sum test and Mann-Whitney test. Hodges-Lehmann estimator of shift and the corresponding confidence interval. Problem of ties. Kruskal-Wallis test and some post-hoc tests. Spearman's rho, Kendall's tau. Theil's tests, estimators and confidence intervals concerning parameters of simple linear regression. Estimator's robustness to outliers (breakdown point). Kolmogorov-Smirnov tests. Cramér-von Mises test. Multivariate tests: component-wise sign test, Rayleigh test, Randles test by means of interdirections. Availability of the discussed methods in the software R.	
Recommended literature: Rublík F: Neparametrické metody. Veda 2011; Lehmann E: Nonparametrics: Statistical Methods Based on Ranks (revised edition). Springer 2006; Hollander M, Wolfe D A, Chicken E: Nonparametric statistical methods 3rd ed. Wiley 2013;	
Languages necessary to complete the course: Slovak, English	
Notes:	

Past grade distribution					
Total number of evaluated students: 158					
A	B	C	D	E	FX
68,99	12,03	6,96	5,06	4,43	2,53
Lecturers: Mgr. Ján Somorčík, PhD.					
Last change: 11.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-135/00	Course title: 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: 100.00% – 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. He or she 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 value 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: 38					
A	B	C	D	E	FX
52,63	26,32	5,26	0,0	13,16	2,63
Lecturers: Mgr. Gábor Szűcs, PhD., doc. Mgr. Igor Melicherčík, PhD.					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-110/00		Course title: Physical Education and Sport (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: 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: 1657					
A	B	C	D	E	FX
98,37	0,6	0,06	0,0	0,0	0,97
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, Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTV/2-MXX-120/00		Course title: Physical Education and Sport (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: 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 aerobics 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: 1557					
A	B	C	D	E	FX
98,52	0,39	0,06	0,06	0,06	0,9
Lecturers: Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Branislav Nedbálek, PaedDr. Mikuláš Ortutay, Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-210/00		Course title: Physical Education and Sport (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 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): 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: 1281					
A	B	C	D	E	FX
98,75	0,47	0,08	0,0	0,0	0,7
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, Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KTV/2-MXX-220/00		Course title: Physical Education and Sport (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: 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: 1110					
A	B	C	D	E	FX
98,47	0,45	0,09	0,09	0,09	0,81
Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Branislav Nedbálek, Mgr. Júlia Raábová, PhD., Mgr. Tomáš Lovecký					
Last change: 15.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-EFM-152/15	Course title: Principles of Mathematical Modelling in Science and Engineering
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: 1.	
Educational level: II.	
Prerequisites:	
Course requirements: Interim assessment during the semester has a weight of 40% (homeworks 30%, bonus exercises 10%). The two semester exam papers have a total weight of 60% (the first paper taken in the middle of the semester, the second paper taken at the end of the semester). The student must obtain at least half of the points from each semester exam paper. The final evaluation can be adjusted by an oral exam (theoretical questions, written preparation). 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 the intermediate / final evaluation: 40/60	
Learning outcomes: By completing this course, the student will gain knowledge of the principles of mathematical modeling of phenomena in the natural and technical sciences.	
Class syllabus: Basic principles of modeling. Principle of nondimensionalisation. Buckingham Pi-theorem. Dimensionless parameters. Asymptotic expansion, convergence vs. divergence, uniformity. Matched asymptotic approximations. Application of asymptotic methods: Van der Pol oscillator. Heat transfer model. Degenerate diffusion. Material derivative. Vorticity. Viscous flow. Flow instability and transition to turbulence.	
Recommended literature: A. C. Fowler, Mathematical Models in the Applied Sciences, Cambridge University Press, 1997 A. Quarteroni, P. Gervasio, A Primer on Mathematical Modelling, Springer, 2020	
Languages necessary to complete the course: Slovak, English	
Notes:	

Past grade distribution					
Total number of evaluated students: 74					
A	B	C	D	E	FX
54,05	20,27	9,46	5,41	2,7	8,11
Lecturers: doc. RNDr. Peter Guba, PhD.					
Last change: 22.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-141/15	Course title: Probability Theory
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: test (teaching period), written exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 40/60	
Learning outcomes: The student understands various advanced probabilistic concepts and statements based on the theory of measures and integration. He also comprehends the basic properties of martingales and knows about some of their applications.	
Class syllabus: <ol style="list-style-type: none"> 1. How to understand the concepts of random event and random variable. Conditions of measurability of a mapping; applications of the Borel-Cantelli lemma. 2. Basics of the signed measures theory: positive and negative sets, set of zero signed measure in the strong sense, Hahn decomposition, Jordan decomposition, absolute continuity, Radon-Nikodym theorem, application of the Radon-Nikodym derivative via the change of variable theorem. 3. Sigma-algebra as a representative of extra information, filtration; conditional expectation given by a sigma-algebra (geometric and probabilistic approach). 4. Martingale, supermartingale, submartingale; sigma-algebra generated by random variables; stopping time. 5. Some winning betting strategies in gambling (e.g. the martingale betting strategy); Doob's optional stopping theorem and its applications to gambling of one or more players, to random walks, and to evaluation of some expected stopping times in gambling. 6. Tower property of conditional expectations and a corollary; properties of martingale increments; ways to produce a martingale. 7. Applications of conditional expectations and martingales to insurance: model with random interests, valuation of the policy, technical financial and total loss of the insurer; extensions of the Hattendorff's theorem to the case of random interests and financial or technical losses. 	
Recommended literature: Williams D: Probability with Martingales. Cambridge University Press 1991;	

Melicherčík I: Kapitoly z finančnej matematiky. Epos 2006;
 Bhattacharya R N, Waymire E C: Stochastic Processes with Applications. SIAM 2009;
 Bühlmann H: Life Insurance with Stochastic Interest Rates. In: Ottaviani G (eds) Financial Risk in Insurance. Springer 2000.

Languages necessary to complete the course:

Slovak, English

Notes:

Past grade distribution

Total number of evaluated students: 88

A	B	C	D	E	FX
30,68	13,64	20,45	21,59	12,5	1,14

Lecturers: Mgr. Ján Somorčík, PhD.

Last change: 11.03.2022

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-952/15	Course title: Probability and Mathematical Statistics
Number of credits: 6	
Educational level: II.	
Course requirements: Evaluation based on: Assessment by the committee for the state examinations Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The student passes the state exam.	
Class syllabus: The student draws questions from a given field of questions from profile courses. After a short preparation he answers the questions and additional questions of the members of the committee.	
State exam syllabus:	
Recommended literature: According to the announced topics of the state examinations	
Languages necessary to complete the course: Slovak, English	
Last change: 13.03.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-222/15	Course title: 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: 3	
Recommended semester: 1., 3.	
Educational level: II.	
Prerequisites:	
Course requirements: Grading scale: A 90%, B 80%, C 70%, D 60%, E 50%	
Learning outcomes: Students will acquire basic knowledge of accessing the databases of various formats via SAS software.	
Class syllabus: - orientation in the SAS environment 1) DATA step: - reading the data files of various formats - validation and data cleansing - data filtering and creation of derived variables - joining multiple data files - creation of reports - saving outputs 2) PROC step: - chosen basic procedures: syntax, basic settings (options)	
Recommended literature: SAS Institute Inc. 2001. Step-by-Step Programming with Base SAS® Software. Cary, NC: SAS Institute Inc. https://support.sas.com/documentation/onlinedoc/91pdf/sasdoc_913/base_step_10071.pdf	
Languages necessary to complete the course: slovak, english	
Notes:	

Past grade distribution					
Total number of evaluated students: 154					
A	B	C	D	E	FX
52,6	29,87	12,34	1,3	3,25	0,65
Lecturers: Mgr. Jozef Kováč, PhD.					
Last change: 05.04.2017					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-101/00		Course title: Random Processes (1)			
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: 1.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Random process probability distribution, expectation and covariance function of random process, stationary random process, AR, MA, ARMA, ARIMA and SARIMA models for time series.					
Recommended literature: Anděl: Statistická analýzy časových řad. Štulajter: Random Processes and Time Series.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 192					
A	B	C	D	E	FX
35,42	25,52	20,31	11,46	6,77	0,52
Lecturers: Mgr. Jozef Kováč, PhD.					
Last change: 17.09.2021					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-102/00		Course title: Random Processes (2)			
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.					
Educational level: II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Estimates and forecasting of time series, ARCH and GARCH models, time series regression, time series decomposition, spectral analysis, spectral density and its estimation.					
Recommended literature: Anděl: Statistická analýzy časových řad. Štulajter: Random Processes and Time Series.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 194					
A	B	C	D	E	FX
35,57	21,65	19,07	14,95	7,22	1,55
Lecturers: Mgr. Jozef Kováč, PhD.					
Last change: 17.09.2021					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-PMS-107/15	Course title: Regression Models
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: Evaluation based on: test, project (teaching period), oral exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50 (test 30 + project 20)/50	
Learning outcomes: The students will acquire understanding of linear, generalized linear and nonlinear regression models. They will also learn how to apply these models to practical problems.	
Class syllabus: 1. Linear regression model – least squares estimator, rank-deficient model, Gauss-Markov theorem, confidence regions. 2. Generalized linear model – exponential class of distributions, link function, parameter estimation, hypothesis testing. 3. Nonlinear regression model – least squares estimator (LSE), properties of LSE and the computation of LSE, tests and confidence regions.	
Recommended literature: Pázman A, Lacko V: Prednášky z regresných modelov : Odhadovanie parametrov strednej hodnoty a štatistická optimalizácia experimentu, Univerzita Komenského, 2012; Faraway J J: Extending the Linear Models with R: Generalized Linear, Mixed Effects and Nonparametric Regression Models, 2nd ed., Chapman & Hall/CRC, 2016	
Languages necessary to complete the course: Slovak, English	
Notes: Knowledge of linear regression is assumed, for instance at the level of Econometry 1-EFM-380.	

Past grade distribution					
Total number of evaluated students: 86					
A	B	C	D	E	FX
31,4	17,44	22,09	18,6	9,3	1,16
Lecturers: Mgr. Samuel Rosa, PhD.					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-220/13		Course title: Regression Models with Random Effects			
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: FMFI.KAMŠ/2-PMS-107/15 - Regression Models					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 5					
A	B	C	D	E	FX
80,0	0,0	0,0	20,0	0,0	0,0
Lecturers: doc. RNDr. Viktor Witkovský, CSc.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-218/13		Course title: Reliability 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: 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: 40					
A	B	C	D	E	FX
60,0	20,0	12,5	2,5	5,0	0,0
Lecturers: doc. Mgr. Ján Mačutek, PhD.					
Last change: 02.06.2015					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-161/00		Course title: Russian Language (1)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I., 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 А1 (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: 707					
A	B	C	D	E	FX
58,56	16,55	11,03	4,38	1,84	7,64
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-162/00		Course title: Russian Language (2)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: 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 А1 (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: 421					
A	B	C	D	E	FX
65,08	15,68	8,79	3,8	0,95	5,7
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-261/00		Course title: Russian Language (3)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I., 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 А2 (Ольга Долматова, Екатерина Новачац) а Short Stories in Russian (Olly Richards, Alex Rowlings)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 200					
A	B	C	D	E	FX
70,5	17,5	8,5	2,5	0,0	1,0
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-262/00		Course title: Russian Language (4)			
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 26 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I., 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 А2 (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: 144					
A	B	C	D	E	FX
75,69	13,19	6,94	2,78	0,69	0,69
Lecturers: Viktoria Mirsalova					
Last change: 20.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-EFM-140/19		Course title: SQL Databases			
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: 4.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KAMŠ/2-EFM-140/15					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 166					
A	B	C	D	E	FX
33,73	12,05	18,67	16,87	12,65	6,02
Lecturers: Mgr. Róbert Breier, PhD., RNDr. Tibor Ženiš, PhD.					
Last change:					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-EFM-140/19		Course title: SQL Databases			
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: 3.					
Educational level: II.					
Prerequisites:					
Antirequisites: FMFI.KAMŠ/2-EFM-140/15					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 166					
A	B	C	D	E	FX
33,73	12,05	18,67	16,87	12,65	6,02
Lecturers: Ing. Alexander Šimko, PhD.					
Last change:					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022	
University: Comenius University Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/2-EFM-143/17	Course title: Selected Actuarial Techniques
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:	
Course requirements: During the semester the student can get 100% of points, for solving individual assignments (50%) and elaboration and submission of the semester project (50%). Grade thresholds: A: 100.00% – 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 basic methods of work in life and non-life insurance in an international insurance company focusing on methods of cash-flow projection. He or she will be able to calculate actuarial and financial indicators.	
Class syllabus: Actuarial models in life insurance. Modelling the development of insurance contracts from the perspective of the client. Development of the number of insurance contracts with respect to the expected probability of death and lapse. Development of the mathematical reserves in the entire portfolio. Modelling of other variables affecting the profit of the insurance company. Modelling the future profits using the direct method. Modelling the future profits using the indirect method. Modelling of the present value of financial indicators. Impact of changes in assumptions on the profit of an insurance company. Data preparation for modelling using the software R. Application of Generalized Linear Models (GLM) using the software R – selecting of appropriate parameters, presentation of results using R Shiny package. Portfolio management in the insurance company using actuarial and financial indicators and relationships between them.	
Recommended literature: Modern Actuarial Risk Theory Using R / Rob Kaas, Marc Goovaerts, Jan Dhaene, Michel Denuit. Heidelberg : Springer, 2008, ISBN: 978-3-540-70998-5; Jazyk R v aktuárskych analýzach / Michal Páleš. Bratislava : Vydavateľstvo EKONÓM, 2017, ISBN 978-80-225-4331-6;	

Jazyk R pre aktuárov / Michal Páleš. Bratislava : Vydavateľstvo EKONÓM, 2019, ISBN 978-80-225-4331-6;
Zurich Insurance Company Ltd internal training materials.

Languages necessary to complete the course:

Slovak, English

Notes:

Limit: maximum 25 students.

It is recommended to have basic R-software skills. At the seminars, we present quantitative techniques used by actuaries and use real data sets from the area of life and non-life insurance.

Past grade distribution

Total number of evaluated students: 69

A	B	C	D	E	FX
53,62	18,84	11,59	10,14	4,35	1,45

Lecturers: Mgr. Marek Šipicki

Last change: 15.06.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-125/00		Course title: Seminar in Mathematical Statistics (1)			
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: Preliminary semester evaluation: talks Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 100/0					
Learning outcomes: The students will extend their knowledge in selected areas related to the statistical topics included in the master study program. Moreover, the students will improve their presentation skills.					
Class syllabus: Talks on the topics extending the statistical methods included in the master study program, and the topics of students' diploma theses.					
Recommended literature: Anděl, J.: Statistické metody, Matfyzpress Praha 1998 Literature given in the information sheets of the obligatory courses of the study program					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 182					
A	B	C	D	E	FX
92,86	5,49	1,65	0,0	0,0	0,0
Lecturers: doc. Mgr. Radoslav Harman, PhD., doc. RNDr. Katarína Janková, CSc.					
Last change: 08.05.2017					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-126/00		Course title: Seminar in Mathematical Statistics (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: 3					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements: Preliminary assessment: individual assessment of student's presentations Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%					
Learning outcomes: The student will enlarge his knowledge in a selected field concerning problems of probability or random processes. He will gain an experience with individual presentations.					
Class syllabus: Presentations of themes by students according to selected topics in probability and random processes.					
Recommended literature: Basic literature given in the information sheets of the obligatory subjects of the study program.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 184					
A	B	C	D	E	FX
98,37	0,54	1,09	0,0	0,0	0,0
Lecturers: doc. RNDr. Katarína Janková, CSc., doc. Mgr. Radoslav Harman, PhD.					
Last change: 02.05.2017					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-121/00		Course title: Sequential 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: 3					
Recommended semester: 4.					
Educational level: II.					
Prerequisites:					
Course requirements: Preliminary semester evaluation: test and homeworks Final examination: written examination Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%					
Learning outcomes: Upon satisfactory completion of the course the student will be able to use sequential procedures for the statistical hypothesis testing and the estimation of unknown parameters.					
Class syllabus: Sequential hypothesis testing, sequential tests for quality control. Wald sequential test, its properties and characteristics. Wald's identities and their applications for operation characteristics and average sample number of a sequential test. Testing composite hypotheses, Sobel Wald test, comparison of parameters of two distributions. Sequential point estimation, Rao-Cramer theorem, Stein's two stage procedure. Sequential confidence intervals.					
Recommended literature: Hušková: Sekvenční analýza. Rao: Lineární metody statistické indukce a jejich aplikace. Govindarajulu, Z: Sequential statistics (2004)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 186					
A	B	C	D	E	FX
33,87	25,27	21,51	14,52	4,3	0,54
Lecturers: doc. RNDr. Katarína Janková, CSc.					
Last change: 24.04.2017					

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-171/20		Course title: 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.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebežneho-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 syllabus is targeted at the comprehension of the basics of the Slovak language for the absolute beginners (A1).					
Recommended literature: Križom- 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: 23					
A	B	C	D	E	FX
47,83	0,0	0,0	0,0	0,0	52,17
Lecturers: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-172/20		Course title: 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.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebežneho-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 syllabus 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: Križom- 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: 22					
A	B	C	D	E	FX
81,82	0,0	4,55	0,0	0,0	13,64
Lecturers: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-271/20		Course title: 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.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebežneho-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 syllabus 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: Križom-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: 8					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KJP/1-MXX-272/20		Course title: 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.					
Educational level: I., II.					
Prerequisites:					
Course requirements: tests Course prerequisites: https://fmph.uniba.sk/microsites/kjp/katedra-jazykovej-pripravy/poziadavky-na-udelenie-priebezhneho-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 syllabus 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: Križom-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: 7					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Aneta Barnes					
Last change: 21.06.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-115/17		Course title: 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.					
Educational level: 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: 83					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0
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.					

Last change: 16.06.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFL.KTV/2-MXX-116/18		Course title: 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.					
Educational level: 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: 50					
A	B	C	D	E	FX
94,0	0,0	0,0	0,0	0,0	6,0

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:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-221/14		Course title: Statistical methods in clinical trials			
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: 1., 3.					
Educational level: II.					
Prerequisites:					
Recommended prerequisites: 2-PMS-108 Regression models (2)					
Course requirements: Scale of assessment (preliminary/final): 100/0					
Learning outcomes: Using statistical methods in the design of clinical trials					
Class syllabus: Phases and aims of clinical trials, blinding, randomization, MTD, MED, DLT. Designing clinical trials in Phase I: 3+3 design, group up-and-down designs, continual reassessment method. Designing clinical trials in Phase II: two-stage designs, dose-response designs. Designing clinical trials in Phase III: group sequential methods, adaptive designs, biased-coin rules, designs for estimating MTD and MED. Late-onset toxicity trials					
Recommended literature: Design of experiments in nonlinear models : Asymptotic normality, optimality criteria and small-sample properties / Luc Pronzato, Andrej Pázman. New York : Springer, 2013					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 33					
A	B	C	D	E	FX
90,91	6,06	3,03	0,0	0,0	0,0
Lecturers: doc. Mgr. Lenka Filová, PhD.					
Last change: 04.04.2017					

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-129/10		Course title: 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: 3					
Recommended semester: 3.					
Educational level: I., II.					
Prerequisites:					
Course requirements: Evaluation: project, oral exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 80/20					
Learning outcomes: Upon satisfactory completion of the course, students will be able to use selected optimization methods. The emphasize is put on heuristic methods of global optimization utilizing random elements (genetic algorithms, simulated annealing, particle swarm optimization, and so on).					
Class syllabus: Applications of linear programming in statistics. Algorithm Nelder-Mead. Simulated annealing. Genetic algorithms. Particle swarm optimization. Basics of constrained global optimization.					
Recommended literature: Algorithmics for hard problems : Introduction to combinatorial optimization, randomization, approximation, and heuristics / Juraj Hromkovič. Berlin : Springer, 2003 Spall JC: Introduction to stochastic search and optimization. Wiley, 2003 Online materials of the lecturer					
Languages necessary to complete the course: Slovak, English					
Notes:					
Past grade distribution Total number of evaluated students: 173					
A	B	C	D	E	FX
64,74	18,5	7,51	4,62	1,73	2,89
Lecturers: doc. Mgr. Radoslav Harman, PhD.					
Last change: 10.03.2022					

Approved by:

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-123/10		Course title: Stochastic Simulation 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: 3					
Recommended semester: 1., 3.					
Educational level: II.					
Prerequisites:					
Course requirements: Evaluation based on: project (teaching period), oral exam Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50% Scale of assessment (preliminary/final): 50/50					
Learning outcomes: The students understand the basic methods of computer sampling of random variables and vectors, apply them to the computation of Monte Carlo estimates and use them for the simulation of complex stochastic systems.					
Class syllabus: Generating random numbers, testing of random number generators, Sampling discrete random variables and vectors, Sampling continuous random variables and vectors, Statistical analysis of simulated data, Classical Monte Carlo methods.					
Recommended literature: Ross S: Simulation, Elsevier Academic Press 2006; Study materials of the lecturer.					
Languages necessary to complete the course: Slovak, English					
Notes: Enrollment limit: 40 students					
Past grade distribution Total number of evaluated students: 392					
A	B	C	D	E	FX
44,13	22,96	14,29	8,67	6,12	3,83
Lecturers: doc. Mgr. Radoslav Harman, PhD.					
Last change: 10.03.2022					
Approved by:					

COURSE DESCRIPTION

Academic year: 2021/2022					
University: Comenius University Bratislava					
Faculty: Faculty of Mathematics, Physics and Informatics					
Course ID: FMFI.KAMŠ/2-PMS-131/17		Course title: Survival Analysis			
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: 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 will gain knowledge about selected statistical methods used in analysis and modelling of censored data, mainly in medical applications.					
Class syllabus: Censoring, survival function and hazard function. Discrete time models. Nonparametric estimates. Kaplan-Meier estimate. Comparing two survival datasets. Log-rank test. Wilcoxon test. Proportional hazards model. Likelihood function for proportional hazards model parameters. Weibull model as a proportional hazards model. Log-linear form of the Weibull distribution. More distributions used in survival analysis. Diagnostics in proportional hazards model. Cox-Snell residuals. Martingale residuals. Aft (accelerated failure time) models. Cox regression model. Models with time-dependent explanatory variables.					
Recommended literature: Collett, David. Modelling survival data in medical research. CRC press, 2015. Kleinbaum, David G., and Mitchel Klein. Survival analysis. Springer,, 2010.					
Languages necessary to complete the course: Slovak, English					
Notes: Enrollment limit: 20 students					
Past grade distribution Total number of evaluated students: 13					
A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. Mgr. Lenka Filová, PhD.
Last change: 09.03.2022
Approved by: