

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Management	
Course ID: FM.KIS/372AB/21	Course title: Data Analysis for Management
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 2., 4.	
Educational level: I., II.	
Prerequisites:	
Course requirements: - active participation during seminars in solving problems and assignments - elaboration and submission of assignments on time - delays will be penalized - preparation and submission of the final report on time - delays will be penalized Scale of assessment (preliminary/final): - 13% active participation in work at seminars- 60% work with data on assignments during the semester- 27% final report	
Learning outcomes: Business Data Scientist ● Analyzes data using various tools ● Solve problems by using modeling techniques ● Designs, builds and maintains data and analytical infrastructure ● Creates sophisticated analytical models ● Derives comprehensively acquired data outputs for client information and facilitation his business decision ● Skills: data extraction, data transformation, data retrieval, dynamic data analysis, machine learning, Big Data, SQL, R, Python and many more.	
Class syllabus: 1. What does the real database looks like and what does the stored real data look like? (Introduction to SQL structures. Basic commands (Select, Where, Order By, ...). Data types. Keys.) 2. How to extract the necessary data from the database for further analysis? (Join, Inner Join, Union, ...) 3. How to save hours with demanding databases when downloading and analyzing data via SQL? (Efficient code writing in SQL. Window Function.) 4. Summary of knowledge (Practicing previous tasks. Indexing.) 5. How to use R language, one of the most used languages by data analysts? (Introduction to R. Library Variables. Fields. Data Frames. Features. For cycle. If.) 6. How to perform an initial descriptive and exploratory analysis of the data set? (Basic statistical measures (mean, variance, quantiles). Graphs (histogram, boxplot).)	

7. How to verify and test hypotheses in R language (part 1)? (Statistical induction. Testing of statistical hypothesis. Parametric tests.)
8. How to verify and test hypotheses in R language (part 2)? (Statistical induction. Testing of statistical hypothesis. Nonparametric tests.)
9. How do I find out the basic relationships and connections between the variables of a data set? (Correlation and association analysis. Covariance. Correlation and correlation coefficients. Chi-square test, measures associations)
10. How do I find the relationship between two / more independent / dependent groups of a data file? (F-test, t-test and ANOVA - parametric / non-parametric.)
11. How do I detect more complex relationships in the data and make a prediction? (Regression models - linear / logistic. Simple and multiple linear / logistic model. Least squares method.)
12. How do I identify a trend in the data? (Analysis of time series. Decomposition of time series into components. Trend determination.)
13. How to use the acquired knowledge in the increasingly used Python language?

Recommended literature:

Languages necessary to complete the course:

english

Ethics:

The syllabus lists knowledge, skills, competences and transferable skills that the students will acquire by successfully completing the course. These will impact on their personal development and can be used both in their future careers and in their lives as active citizens in democratic societies.

Following the provisions of Internal Regulation of the Comenius University Bratislava - Internal system of ensuring the quality of higher education of the Comenius University Bratislava, *each student consistently achieves his/her study results honestly during his/her studies; does not cheat or use dishonest procedures during any form of verification of his study knowledge and knowledge*. Cases of violation of this provision can be assessed as a violation of obligations arising from legal regulations (...). Such an assessment may be associated with applying relevant legal consequences on an academic, (...) or disciplinary level.

Following the provisions of Internal Regulation of the Comenius University Bratislava - Disciplinary regulations of the Comenius University Bratislava for students, *a student's disciplinary offence is any form of writing off or illegal cooperation or hinting during the written or oral evaluation of study results (knowledge verification) or during preparation for it within the course, or the use of technical devices or any information carriers in a way other than permitted during the written or oral evaluation of study results (knowledge verification) or during preparation for it within the subject*. Some of the disciplinary measures may be imposed on the student for a committed disciplinary offence: reprimand, conditional expulsion from studies or expulsion from studies.

Notes:

Past grade distribution

Total number of evaluated students: 163

A	ABS	B	C	D	E	FX	M
50,92	0,0	11,04	7,98	1,84	5,52	13,5	9,2

Lecturers: Ing. Rastislav Kulháněk, PhD.

Last change: 15.02.2026

Approved by: prof. Mgr. Anna Lašáková, PhD.