

COURSE DESCRIPTION

Academic year: 2026/2027	
University: Comenius University Bratislava	
Faculty: Faculty of Management	
Course ID: FM.KIS/115AB/16	Course title: Statistical Methods
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 3 / 2 per level/semester: 42 / 28 Form of the course:	
Number of credits: 5	
Recommended semester:	
Educational level:	
Prerequisites:	
Course requirements: Continuous evaluation will consist of two parts: 1. MidTerm Project: Students will complete a project during the term to demonstrate their understanding and application of the course material. This may involve data collection, analysis, and a written or oral presentation of findings. 2. Final Exam Project: At the end of the course, students will undertake a comprehensive project that tests their overall mastery of the subject. This project will require them to synthesize concepts learned throughout the term and present their results in a clear, structured format. MidTerm Project • Form: - o A written report (approximately 5–10 pages) describing the project's objectives, methodology, analysis, and conclusions. - o A brief presentation (in-class or recorded) summarizing the main findings. • Structure: - o Introduction: Clearly state the project's purpose and research question(s). - o Methodology: Describe the data sources, tools (e.g., R, Python), and statistical techniques used. - o Analysis: Present findings, including relevant tables, charts, or code snippets. - o Discussion/Interpretation: Interpret results in the context of the research question(s). - o Conclusion and Future Work: Summarize key takeaways and suggest possible next steps. - o References: List any sources or datasets used. • Other Features: - o Must include at least one real or simulated dataset to demonstrate data handling and analysis. - o Students are encouraged to apply statistical methods covered in class (e.g., regression, exploratory data analysis). - o Code and scripts should be clearly documented. • Deadline: - o Submission: To Be Announced - o Presentation: To Be Announced Final Exam Project (60% of evaluation) • Form:	

- o A comprehensive written report (approximately 10–15 pages) showcasing an in-depth analysis.
 - o An oral or recorded presentation detailing key findings and reflecting on the entire course content.
 - Structure:
 - o Executive Summary: A concise overview of the project's goals, approach, and main results.
 - o Literature/Context Review (optional but recommended): Briefly discuss background or related work if applicable.
 - o Extended Analysis: Demonstrate a range of techniques (e.g., advanced regression, hypothesis testing, model validation) and justify each step.
 - o Results and Discussion: Present outcomes with clarity, linking them back to course concepts.
 - o Limitations: Critically assess any constraints or shortcomings in your approach or data.
 - o Conclusion: Summarize the project's contributions and highlight lessons learned.
 - o References and Appendix: Provide citations, data sources, and additional materials (e.g., code).
 - Other Features:
 - o Must integrate multiple topics from the course (e.g., probability, regression, EDA, etc.).
 - o Emphasis on critical thinking, thoroughness, and clarity of communication.
 - o Students should demonstrate proper data handling, coding proficiency, and analytical rigor.
 - Deadline:
 - o Final Report Submission: 15..6.2025 until 23:59:59
 - o Presentation To Be Announced
- MidTerm and Final Exam project
- Students work on assignment alone.
 - Assignments are submitted electronically on the address of urban.kovac@fm.uniba.sk (students communicate exclusively via university e-mail addresses).
 - Assignments must be elaborated according to academic rules, complying with formal and content requirements and academic ethics. Should these be violated the process will follow internal university and internal faculty rules of academic malpractice.
- Evaluation of the Regular Exam Based on the Two Projects
1. Overall Grading
 - o The regular exam consists of two major projects:
 1. MidTerm Project (continuous evaluation component)
 2. Final Exam Project (comprehensive assessment)
 - o Each project will be graded on the quality of analysis, clarity of communication, and application of course concepts.
 - o A passing grade in both projects is required to successfully complete the course.
 2. Insufficient Work and Retake Process
 - o If a student's submitted project (Term Project or Final Exam Project) does not meet the minimum required standards, the student will receive notification of insufficiency.
 - o From the date of notification, the student will have 5 days to revise and resubmit the project as a retake exam.
 - o The resubmitted project must address all identified deficiencies; otherwise, the student risks failing the course.
 3. Final Grade Determination
 - o The final grade is calculated based on the combined evaluations of both the Term Project and the Final Exam Project, taking into account any revisions made during the retake process.
 - o Students are encouraged to incorporate feedback promptly to demonstrate improvement in both technical and communication skills.
- This approach ensures continuous assessment throughout the term and provides a structured opportunity for students to correct and improve their work if their initial submission does not meet the required standard.

Scale of assessment (preliminary/final): 40/60
Learning outcomes: By completing the course, the student will: • Understand the fundamental concepts and techniques of statistical methods and their application in decision-making processes. • Be able to apply various statistical methods to analyze data, including descriptive statistics, probability theory, hypothesis testing, correlation and regression analysis, and statistical inference. • Develop proficiency in using software tool such as R for performing statistical analysis on real-world datasets. • Gain the ability to interpret statistical results, make informed decisions based on data, and communicate findings effectively in both written and oral formats. • Build critical thinking skills by evaluating the appropriateness of statistical methods for different types of data and research questions. • Understand how statistical methods can be used to draw conclusions, test hypotheses, and solve practical problems in business, economics, and social sciences. The course objectives are designed to provide students with a solid foundation in statistical analysis, empowering them to apply statistical methods confidently in various professional contexts. Lectures: Theoretical explanation of individual methods. Exercises: Solving practical tasks using R software on real data.
Class syllabus: 1. Introduction to Statistical Methods and R Environment 2. Basic Probability Concepts 3. Conditional Probability and Bayes' Theorem 4. Random Variables and Probability Distributions 5. Exploratory Data Analysis (EDA) in R 6. Deep Dive into Exploratory Data Analysis (EDA) 7. Correlation and Introduction to Linear Regression 8. Simple Linear Regression Analysis with R 9. Multiple Linear Regression Basics 10. Diagnostics and Model Assumptions for Multiple Regression 11. Model Building and Variable Selection 12. Practical Applications of Regression in R 13. Course Review, Advanced Topics, and Final Project Discussion
Recommended literature: McClave J. T., Benson P. G., Sincich T.: Statistics for Business and Economics, Prentice-Hall, INC., 2001 http://www.prenhall.com/mcclave/ Wonnacot T. H., Wonnacot R. J.: Introductory Statistics. John Wiley and Sons; Third Edition edition (1977) Hanke J. H., Reitsch A. G.: Understanding Business Statistics, Richard D. Irwin, INC., 1991 E-book: http://www.statsoft.com/textbook/stathome.html
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: 187

Hodnotenie predmetu sa zobrazí až v prípade zaradenia predmetu do nejakého študijného plánu.

Lecturers: doc. RNDr. Mária Bohdalová, PhD., doc. Ing. Mgr. Urban Kováč, PhD., Mgr. Branislav Novotný, PhD.

Last change: 26.02.2025

Approved by: