Advanced Analytics for Business
Master Program

Study domain: SYSTEMS ENGINEERING

Description

The Master's program "Advanced Analytics for Business" is aimed at graduates of bachelor's or equivalent studies who wish to acquire specific skills for implementing data collection, processing, and interpretation activities within organizations. The program is particularly designed for professionals from various sectors of the economy who want to understand the potential of their organization in transitioning to data-driven activities aimed at increasing organizational efficiency.

Relevance to the job market

The need for experts in advanced data analysis who can interpret the current large volumes of data is unprecedented at both global and national levels. Correct data interpretation leads to making informed decisions in both the public and private sectors. Recent studies show a shift in demand for new skills in the job market, with advanced data analysis (data analysts and data scientists), AI and machine learning specialists, and big data processing experts ranking in the top three. In Romania and abroad, every field of activity requires these experts, with ten major sectors identified where the need for advanced data analysis experts is critical: banking, insurance, telecommunications, energy and utilities, air and road transportation, agriculture, the public sector, retail, manufacturing, and IT service.

Target group

The target group of the program includes graduates of bachelor's or equivalent studies in the fields of Computer Science and Information Technology, Systems Engineering, Mathematics-Computer Science, Cybernetics, Economic Sciences and Management, Business Engineering, and other related fields.

Competencies and skills

Mastering the fundamentals of programming for advanced data analysis; understanding the main techniques for data preparation and creating reports, forecasts, and predictions; understanding the concepts of predictive modelling and optimization and how they can be applied in data-intensive projects; a critical and in-depth understanding of the principles, methodologies, and techniques for processing and analysing data that can be applied to highly complex and large-scale problems; understanding how data pipelines can be created in alignment with business requirements and how advanced analysis can be transformed into actionable insights.

Topics of study

Y1/S1: Fundamentals of Data Science in Business and Engineering, Programming Essentials for Data Processing, Visual Analytics Techniques, Elective course, Research activities.

Y1/S2: Introduction to Exploratory Data Analysis, Predictive Modelling, Neural Networks Essentials, Elective course, Research activities.

Y2/S1: Research Design, Software Engineering Fundamentals, Forecasting and Decision Support Systems, Elective course, Research activities.

Y2/S2: Research activities, M.Sc. thesis preparation. Ethics.

Programming languages and technologies

SAS Viya, SAS Virtual Learning Environment, SAS Programming, Python, R, Excel, etc.

Research topics (examples)

Transdisciplinary research topics that could be formulated using advanced data analysis in various fields of application, such as climate change, green energy, reducing the impact of human activities on nature, restoring natural habitats, improving technological processes for the purpose of evaluating and reducing CO_2 emissions, analysing and supporting the development of sustainable behaviours, evaluating how resilience and sustainability are interconnected in smart service systems that are heavily data-driven.

Other information

Teaching language:	English
Certification:	Students will benefit from internships and certification opportunities in the field of advanced data analysis, offered by SAS Institute, through Prometric.
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