

## **Master's program "Business Analytics"**

**2 semesters, 60 credits in ECTS**

**The cipher for the Master's program:**

**1651 (distance learning, self-financed)**

(the cipher is used during the filling in of documents for applying/enrolling)

The programme in "Business Analytics" is designed for students with Bachelor's degree in Economics or Business administration, business analysts and data scientists who want to apply blend of statistics, technical skills and business vision in order to analyse available data and predict future trends, as well as to contribute to operational insights into complex business scenarios. It is a demand-driven programme developed as a result of the realisation of the importance of business analytics and business intelligence for all businesses and constant shortage of professionals in these fields. The education is offered by an outstanding group of faculty staff from different departments who has high academic background and industry experience at senior executive level, as well as recognised publications in leading journals.

The programme in "Business Analytics" **provides knowledge and skills** to big data analytics for business professionals and decision makers. Upon completion of the programme, students will be able to build and use models and techniques to transform data into business insight and knowledge and present them in a compelling way in order to make better and sustainable business decisions.

Job positions in business intelligence, business analytics and big data reach a wider audience and almost every industry. The typical job positions the graduates in "Business Analytics" **could apply** are:

- Business Project Manager
- Big Data Analytics Manager
- Business Analyst
- Marketing Analyst
- Data Scientist
- Analytics Consultant
- Big Data Entrepreneur
- Business & Systems Analyst
- Business Intelligence Consultant
- Operations Analyst

- IT Business Analyst
- Data Solution Architect
- Sales Operations Analyst
- Financial Analyst
- HR Analyst

## **Изучавани дисциплини в магистърската програма**

### **FIRST SEMESTER**

#### **First module**

**Strategic Business Analytics.** The course aims to provide students with specialised education in the use of advanced analytical techniques for managerial decision-making. Students will learn techniques for analysis of existing strategies to identify gaps assessment of the external environment and internal state. On this basis they will be able to identify levers for development issues, risks and limitations, to analyse existing business processes and mechanisms for decision-making.

**R for Business Analytics.** This course introduces the students to the basics of R programming using problem-oriented approach. The first part of the course introduces main data structures, flow control operators and basic graphics in R. The second part concentrates on teaching students how to perform basic operations, related to data analysis.

**Practical Statistics for Data Scientists.** The course aims to offer deep understanding of applying statistical concepts essential to data science, with advice on how to avoid their misuse. The syllabus combines rigorous statistical theory with wider hands-on practical experience of applying statistical models to data. The course includes advanced topics on knowledge and understanding of statistical theory and its applications within data science, the ability to formulate suitable statistical models for new problems, fit these models to real data and correctly interpret the results, the ability to assess the validity of statistical models and their associated limitations, and the practical experience of implementing a range of computational techniques using statistical software R and Microsoft® Office Excel®.

#### **Second module**

**Data Mining for Business Analytics.** The course offers an applied approach to data mining and predictive analytics with clear exposition, hands-on exercises, and real-life case

studies. It is based on application of all of the standard data mining methods using the Microsoft® Office Excel® add-in XLMiner®. The course includes advanced topics on text mining, social network analysis, collaborative filtering, ensemble methods, and uplift modelling. It includes real-world examples to build a theoretical and practical understanding of key data mining methods.

**Elective course block (student must choose one of the courses)**

**Customer Analytics.** The main aim of the course is to highlight key areas of customer analytics and to present instruments (techniques, indicators and measures) for customer evaluation. Students will learn how to analyse customer information in the broader context of overall business performance. They will study the risks posed by unreliable customer information as well as strategies for avoiding this. The course is suitable for business students, analysts, researchers and practitioners working in the area of customer analytics and people responsible for customer management in medium-sized and large firms.

**People Analytics.** The main objective of the course is to explore the existing opportunities for companies to apply data to people decisions. The course deals with contemporary issues, such as recruiting, job design, performance evaluation, compensation, and talent development. By learning how to use different techniques, organizations can establish more efficient and cost-effective working practice through patterns of discovering what is and is not the correct approach to take in workforce decisions.

**Elective course block (student must choose one of the courses)**

**Financial Analytics.** The course aims to develop the competences of the future financial managers related to defining, evaluating, planning and optimizing the financial and investment as well as risk-hedging corporate decisions. The main topics within the course are related to the analysis of operating and fixed capital assets, liquidity, solvency, profitability and the financial performance of the company. The practical module within the course includes a term case study in Corporate Financial Analysis.

**Operations Analytics.** The main objective of the course is to develop theoretical and practical skills on diagnostics and analysis of functional structures and systems of the firm. The emphasis is put on identifying the level of organization, adequacy and rate of functional interaction between the subsystems of the firm. The course on operations analytics focuses on how the data can be used to profitably match supply with demand in various business settings.

## **SECOND SEMESTER**

### **First module**

**Business Intelligence.** This course introduces the business intelligence systems, which support managerial decision-making. The focus is on the use of information technologies and systems to improve the processes and outcomes of human decision-making in a business environment. The course presents the architecture of BI solution and the main steps of building and managing BI systems. Students will gain the knowledge about technologies for gathering, storing, analysing, and accessing information necessary for the business analyst. The topics cover the main steps in BI process: extract, transform and load; data warehousing; online analytical processing; measuring and monitoring key performance indicators; reporting and visualization of business analytics; building enterprise dashboards.

**Master's Seminar in Business Analytics.** The course is designed for master's students who have completed all courses and are about to write and defend a master's thesis project as a final stage in their study programme. The course objective is to familiarize students with the process of writing and defending a master's thesis; with the key characteristics of the theoretical framework and the empirical research; with the requirements for writing a research statement, citing a secondary source and creating a bibliography; with the general requirements for producing a master's thesis and the appropriate behaviour during the thesis defence.

### **Elective course block (student must choose one of the courses)**

**Marketing Analytics.** The aim of the course is to provide students with the most fundamental methodologies used in marketing analytics, and how to apply them to real-life data: segmentation, targeting and scoring, and lifetime value analysis. Students will learn how to extract the data you need from a database with simple SQL statements, how to prepare your data, and how to analyse it with the open-source statistical language R. The goal is to make sure student will acquire skills and techniques that can be applied immediately to real-life situations. It spends little time on theories and concepts.

**Social Media and Web Analytics.** The aim of the course is to facilitate and improve the communication between company brands and customers in the way of use of web analytics tools. Most masters of business analytics want have big databases about their own customers and website visits. Web analytics tools are critical to collecting, surveillance, analysing and another working with data. The data collections determine our past and refine our future through these tools, allow us to find specific answers. This can support strategic marketing and company-wide improvement.

### **Second module**

#### **Master's thesis defence**