Tárgyleírás

Tárgy neve: Business Intelligence and Data Visualization L.

Tárgyfelelős neve: Molnár Bálint, egyetemi docens, tudományos főmunkatárs

Tárgyfelelős tudományos fokozata: Ph.D., doctor habil.

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja angolul / Aim of the subject:

Knowledge

- He/she has complex and up-to-date knowledge of information systems and data analytics methods in corporate and organizational environments.
- Knowledge of the interrelationship between business, organizational, corporate processes, and corporate management, with a particular focus on data analysis and decision preparation.
- A high level of detailed knowledge and understanding of the professional vocabulary, expression, and terminology of the IT field in English.

Abilities:

- Ability to apply the principles and methods of data analysis and data analytics modeling methodologies professionally. Ability to produce system designs and documentation that meet real business and organizational requirements.
- Ability to formalize professional problems of data analysis, data analysis, and decision preparation related to complex information systems, to identify the necessary theoretical and practical background, and solve the problem.
- Ability to perform data analytics, data analysis, and decision support management tasks for complex software systems, database management, data warehouse, and data warehouse systems.
- Ability to collaborate, analyze, design, develop, and implement projects/teams proactively.
- Ability to communicate in written and oral English, participate in discussions, write reports, process, and use scientific and technical material (books, articles, etc.) in a creative way, using a high level of professional vocabulary in the field.
- The ability to use professional sources of information, to extract, critically interpret, and evaluate the knowledge needed to solve a problem.
- Ability to carry out independent scientific research under professional guidance and to prepare for further studies in postgraduate studies.

Attitude:

- Monitor professional and technological developments related to his/her qualifications and IT skills.
- Committed to critical feedback and evaluation based on self-reflection.
- Committed to lifelong learning, open to learning new IT professional competencies.
- Accepts and enforces with colleagues the ethical principles of work and organizational culture and of scientific research in information technology.
- He/she shares his/her own knowledge and attaches importance to the communication of IT professional achievements.
- He/she attaches importance to the communication and implementation of environmental and social responsibility and promotes this through the use of IT tools.
- It is committed to enforcing quality standards and analyzing them using IT tools.
- It is open to pro-active cooperation with professionals in IT and other fields.

Autonomy, responsibility:

- Take responsibility for the professional decisions you make in your IT activities.
- You are responsible for meeting and enforcing deadlines.
- Assumes responsibility for his/her own work and that of his/her staff working under his/her direction or with him/her (in a project).

Az oktatás tartalma angolul / Major topics:

The course deals with business intelligence that provides decision support for business activities on empirical data. The term business is understood in a rather broad sense covering activities in different domains of applications, e.g. enterprise, university, public administration, health, finance, and banking. Business intelligence summarizes a huge set of models and analytical methods such as reporting data warehousing, data mining, process mining, predictive analytics, organizational mining, and text mining.

1. Business Intelligence
   1.1. Introduction – Definition of Business Intelligence.
   1.2. Modelling Business Intelligence
   1.3. Data Provisioning
   1.4. Data Description and visualization
   1.5. Data Mining for Cross-Sectional Data
   1.6. Data Mining for Temporal Data
   1.7. Process Analysis
   1.8. Analysis of Multiple Business Perspectives
2. An Overview of Business Intelligence, Analytics, and Data Science
   2.1. Descriptive Analytics I: Nature of Data, Statistical Modeling, and Visualization
   2.2. Descriptive Analytics II: Business Intelligence and Data Warehousing
   2.3. Predictive Analytics I: Data Mining Process, Methods, and Algorithms
   2.4. Predictive Analytics II: Text, Web, and Social Media Analytics
   2.5. Prescriptive Analytics: Optimization and Simulation
   2.6. Big Data Concepts and Tools
   2.7. Future Trends, Privacy, and Managerial Considerations in Analytics

A számonkérés és értékelés rendszere angolul / Requirements and evaluation:

Exam.

Specific assessment and examination solutions for testing the knowledge of students:

Assessment of the presentation and summary of the dedicated chapter, paper

Continuous progress checking through weekly quizzes

Assignments for problem solving and developing in practice class.

Irodalom / Literature:

Text book, compulsory:

1) Grossmann, Wilfried, and Stefanie Rinderle-Ma. *Fundamentals of Business intelligence*. Springer, 2015.
2) Sharda, Delen & Turban , *Business Intelligence, Analytics, and DataScience, 4/e*, 2018

Proposed further reading:

1) Tufféry, Stéphane. *Data mining and statistics for decision making*. John Wiley & Sons, 2011.
2) McDonald, Kevin, Andreas Wilmsmeier, David C. Dixon, and W. H. Inmon. *Mastering the SAP business information warehouse*. John Wiley & Sons, 2002.