Module Description Nr. 359

Module Name	Business Intelligence
Programme	MSc. Business Information Systems
ECTS-Credits	6
Module Number	3-W-M-BIS-E BI.EN/13
Level	Advanced
Module Type	Elective
Competence Area / Module Group	
Semester	Autumn
Academic Year	2019

Workload

	Workload	Percentage %
Classroom Instruction	60	33
Guided Self-Study	80	44
Autonomous Self-Study	40	22
Total Hours	180	99

Module Coordinator

Hans Friedrich Witschel

Guiding Principle

Business Intelligence is concerned with supporting business decisions with facts or, put another way, with helping business actors in turning data into knowledge that helps to make the right decisions. The module looks at different kinds of decisions (and hence requirements), at different kinds of data and different kinds of tools required to distill knowledge out of data.

Learning Goals	
Knowledge and understanding	• understand why fact-based decision making is useful • be able to explain what business performance management is and how it can be implemented • understand the whole diversity of requirements of the business towards BI analysis tools • understand the potential value and application areas of big data technologies (including text mining), describe their potential to improve/innovate businesses (**Objective 3.1**) • understand success factors and barriers for projects that introduce BI
Application of knowledge and understanding	• be able to design meaningful and informative reports and dashboards that satisfy business information needs (**Objective 3.2**) • know and be able to apply instruments for data exploration and visualisation, such as on-line analytical processing • be able to derive multidimensional models from a description of business information needs (Objective 1.1) • be able to apply information extraction methods for ETL with unstructured data; understand the potential of such methods e.g. for analysis of customer feedback on social media • be able to formulate problems as data mining tasks and to derive and interpret results (**Objective 3.2**)
Ability to make judgements	• be able to recognise and discuss potential risks of applying business performance management (e.g. consequences of measuring with suboptimal KPIs) • be able to judge the potential that predictive analytics techniques have for improving effectiveness and efficiency of decision-making (**Objective 3.1**) • be able to judge and select appropriate Big Data technologies for given business scenarios • be able to identify ethical and legal issues for BI projects
Communication	• be able to design a Balanced Scorecard for a company, including meaningful key performance indicators; be able to use a Balanced Scorecard as a means of communication for goals and measurements. • be able to elicit analytical requirements, e.g. based on interviews with business stakeholders (Objective 1.1) • be able to discuss ethical and legal issues for BI projects
Self-learning skills	• be able to develop strategies for successful

	communication and cooperation with business partners to achieve BI objectives

Content

- Introduction to Business Intelligence
- Requirements for BI systems
- Business Performance Management
- Reporting and dashboarding
- Multidimensional analyses
- Multidimensional modeling
- (Data warehousing)
- Data Mining: predictive analytics (classification + regression)
- Big Data
    - Introduction + architectures
    - Variety: information extraction and text mining
    - Velocity: complex event processing
- Management of BI: Success factors of BI projects
- Ethical and legal issues of BI

Links to other modules

Teaching Method(s)

Contact Hours	Lecture Interactive instruction Discussion Presentation Assignment Group work
Guided Self-Study	Individual work Group work Online Tutorial

Language of Instruction and Assessment

English

Assessment

Type	written exam	project
Number		
Duration (Min)	90	
Weighting (%)	60	40
Evaluation	Grade 1-6	Grade 1-6

Assessments and Other Comments

Assessment is done through a written examination of 90 mins. duration at the end of the course and a project work with oral presentations held during the semester. Homework will not be graded. The module grade is the weighted average out of exam and project, but the module can only be passed if both the average AND the grade in the written exam are 3.5 or above.

Reading List

Required Reading

- script and slides

Recommended Reading

- R. Kimball, M. Ross: The Data Warehouse Toolkit, Wiley Computer Publishing, 2013.
- R. Kimball, M. Ross, W. Thornthwaite, J. Mundy, B. Becker: The Data Warehouse Lifecycle Toolkit, Wiley Computer Publishing, 2008.
- C. Howson: Successful Business Intelligence: Unlock the Value of BI & Big Data, McGraw Hill, 2013.
- W.H. Inmon: Building the Data Warehouse. Wiley Computer Publishing, 2005.
- B. Marr: Key Performance Indicators – the 75 meaures every manager needs to know. FT Publishing, 2012.
- P. Tan, M. Steinbach, V. Kumar: Introduction to Data Mining. Addison Wesley, 2005. http://www-users.cs.umn.edu/~kumar/dmbook/index.php
- R. Feldman, J. Sanger: The Text Mining Handbook, Cambridge University Press, 2007.

Prerequisite Knowledge

Follow-up Module

Comments