

Business Intelligence

Introduction

Dr. Helga Ingimundardóttir (helgaingim@hi.is)

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INDUSTRIAL ENGINEERING

What is Business Intelligence?



Elevator Pitch

Business Intelligence (BI) harnesses the power of data analytics and cutting-edge technology to unlock vital insights from large datasets, equipping leaders to anticipate market trends, enhance operational efficiency, and drive business growth with informed strategies.

Mastering BI is pivotal in an era governed by data, converting analytical skill into foresight and operational enhancement, thus providing a distinct advantage in today's competitive landscape.

BI's Connection with Industrial Engineering



- ▶ Industrial Engineering optimizes complex processes and systems.
- ▶ BI serves as the backbone, providing data-driven insights for improved decision-making.
- ► This integration leads to enhanced stability, innovation, and competitive advantage in industrial operations.

Evolution of Business Intelligence





- Hard to obtain information
- Little to no data analysis
- Was not called BI



BI 1.0

- Availability of computers economized analysis
- IT centric
- Called Decision Support Systems
- Products built for experts
- Access: Upper management
- Output: Number text heavy reports



BI 2.0

- Web changed users of BI
 IT focus on data management
- Called BI from the early
- 1990s

 Products built for business
- Access: Upper/Middle management

users.

 Output: Interactive dashboards with myriad data visualizations



 Big data & cloud computing opened up new avenues for BI

BI 3.0

- IT focus moving to data quality and governance
- Products offer end to end self service
- Access: Business users at all levels
- Output: Incorporates NLP, AI & ML to offer augmented analytics.

Innovations/ Trends

Auto narratives | BI Bots | Mobile Analytics | Collaborative BI | Data Governance

Course Structure



The course is designed around the latest trends in the field and comprises six modules:

- 1. Data ethics
- 2. Natural language processing
- 3. Guided learning and computational mathematics
- 4. Semi- and unsupervised learning (clustering)
- 5. Event analysis in processes (process mining)
- 6. Capstone project

Capstone Project



The capstone project integrates the course's modules into a single, cohesive experience. Students will collaborate with Tixly Ticketing, employing their actual data to craft a comprehensive technical report and presentation.

This pivotal project simulates a professional BI consultancy, emphasizing the practical application of analytical skills in a real-world business context.



Course Instructors





Hafsteinn Einarsson Assistant Professor, Computer Science hafsteinne@hi.is



Helga Ingimundardóttir Assistant Professor, Industrial Engineering helgaingim@hi.is



Henry Alexander Henrysson Research Specialist, Centre for Ethics hah@hi.is

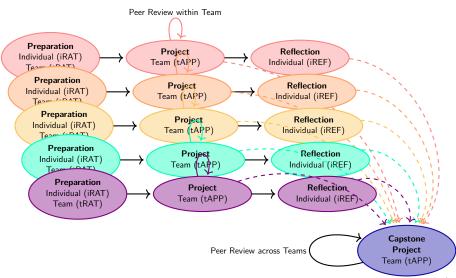
Course Structure



Week	Course Material	
1-3	Data ethics	3
4-5	Natural language processing	
6-7	Guided learning and computational mathematics	
8-9	Semi- and unsupervised learning (clustering)	
10-11	Event analysis in processes (process mining)	
12-15	Capstone Project (Easter Break included)	tixly

Course Progression Flow





Course Assessment



Modules (50% Total)

► Each Module: 10%

iRAT: 1%tRAT: 1%

► tAPP: 4%

► iREF: 4%

Capstone Project (50% Total)

► Peer Review - Feedback: 20%

► Student Feedback: 10%

► Instructor Evaluation of Feedback: 10%

▶ Presentation: 20%

► Technical Report: 40%

► Company's Grade: 20%