21E00052 Data-Driven Business

SYLLABUS

Version 15.1.2018

Instructor's contact information	Course information
Henri Schildt Henri.schildt@aalto.fi Arkadia 3rd Floor Please email to arrange meeting http://people.aalto.fi/#henri.schildt	M.Sc. course (E) 2017-2018, Period 3 (8.1. – 7.2.) A-401 School of Business main building The course is in English https://mycourses.aalto.fi/course/view.php?id=16190 Teaching Assistant: Katharina Cepa

1. OVERVIEW

The purpose of this course is to provide the participants with a detailed understanding of the impact that digitalization is having on businesses. After taking the course, the students will be able to identify new opportunities for optimizing existing operations and creating new products and services based on automatically generated data. The course does not have pre-requisite skills, but the students will be asked to work with actual data and conduct analyses. Students will work in teams to develop data-enabled service concepts and associated business models.

2. PREREQUISITES

This course is open to all master's level students. Some elementary background knowledge in strategic management and statistics is desirable.

3. LEARNING OUTCOMES

The students should develop broad basic understanding of contemporary use of data analytics in the internal management of companies as well as products and services. The specific learning points are:

Knowledge and theory:

- Basic understanding of big data, cloud computing, internet of things and API ecosystems as phenomena and technologies
- Understanding and ability to analyze "digital disruption" of industries and to create realistic scenarios potential development paths

- Understand how and why digital technologies are influencing business models, networks effects, and platforms
- Basic understanding of business model design and the business models enabled by digital data
- Understanding the function of data scientists in corporations and understanding how they are typically organized and used
- Understanding how various data sources are used to answer basic business questions through analytics
- Understand the variance-based and relational perspectives to data and data visualization

Practical skills:
- Ability to design basic the most basic data analyses to describe and improve business processes
- Ability to create simple business-relevant analyses from relational databases using Structural Query Language
- Basic understanding of application programming interfaces (APIs) and how they are used
- Basic skills in data visualization using Excel and Tableau

4. ASSESSMENT, GRADING, EXAM FEEDBACK

The course grading is based on four criteria:

1. Participation and contributions in the classroom (10%)
2. Group assignments, including peer evaluation (50%)
3. Individual assignments (40%)

5. ASSIGNMENTS

The details about assignments will be released soon. Please see the schedule below for deadlines.

Individual assignment #1
Deadline: January 22nd
Task: Analyse how real-time data and advanced algorithms are shaping work in a company of your choice.
Max 10 points

Group assignment #1
Deadline: January 29th
Task: Present an API strategy for Eat & City service.
Max 20 points

Group assignment #2
Deadline: February 5th
Task: Present a data-driven business model based on Eat & City and/or Asiakastieto data.
Max 30 points

Individual assignment #2
Deadline: February 12th
Task: Detailed instructions will be available on MyCourses soon.
Max 30 points

6. READINGS

The readings are assigned for each session, please see the schedule below.

7. SCHEDULE

Participatory lectures are held in room A-401. The lecture schedule is displayed in the table below. Attending the lectures is mandatory.

Session	Date	Topic	Readings	Assignment Due Date
#1	8.1.2018	The data imperative: new technologies and strategies	*McAfee & Brynjolfsson, 2012. Big Data: The Management Revolution. Harvard Business Review. *Yin & Kaynak, 2015. Big data for modern industry: challenges and trends. Proceedings of IEEE, 103(2).	
#2	10.1.2018	Analytics and data-driven management practices **EXERCISE**: SQL	*Book chapter from Pachidi & Huysman (see MyCourses)	
#3	15.1.2018	The logic of optimizing and digital media **GUEST LECTURE**: Ilkka Lavas, City Digital	*Simchi-Levi, 2017. The New Frontier of Price Optimization. MIT Sloan Management Review, Fall 2017 issue.	
#4	17.1.2018	Modularity and APIs **GUEST LECTURE**: Heikki Koivula, Asiakastieto **EXERCISE:** Python	*Schilling, 2000. Toward a General Modular Systems Theory and Its Application to Interfirm Product Modularity. Academy of Management Review. *Roberto Medrano article in Forbes ”Welcome to the API Economy”. *API Economy Overview and Strategy” video by Jerry Cuomo (IBM)	
#5	22.1.2018	Building organizational capabilities and agile organizations	*Davenport et al., 2001. Data to Knowledge to Results: Building an analytical capability. California Management Review.	22.1.2018: DL for individual assignment #1
#6	24.1.2018	Data-enabled business models **EXERCISE**: Excel & Tableau	*Chapter 7 ”Strategies for Monetizing Big Data” from Russell Walker book ”From Big Data to Big Profits”.	
#7	29.1.2018	The ethics and legal concerns in data-driven business	*Zuboff. 2015. Big other: surveillance capitalism and the prospects of an information civilization. Journal of Information Technology. *Schildt draft book chapter (see the website)	29.1.2018: DL for group assignment #1
#8	31.1.2018	Collaboration and ecosystems design in the digital age. **EXERCISE**:	*McIntyre & Srinivasan. 2017. Networks, platforms, and strategy: Emerging views and next steps. Strategic Management Journal.	

Session	Date	Topic	Readings	Assignment Due Date
		Graphs and networks		
#9	5.2.2018	Organizational culture, industry-level inertia, and barriers to digitalization	*Canato et al. 2013. Coerced practice implementation in cases of low cultural fit: Cultural change and practice adaptation during the implementation of Six Sigma at 3M. Academy of Management Journal.	5.2.2018: DL for group assignment #2
#10	7.2.2018	Concluding session and final student presentations		12.2.2018: DL for individual assignment #2

We will have four mandatory 2-hour sessions in the computer class (C-322, Töölö) during Wednesday afternoons:

- Wednesday 10th January: Relational databases and the SQL language
- Wednesday 17th January: Python and APIs
- Wednesday 24th January: Excel & Tableau
- Wednesday 31st January: Graphs & networks

The sessions are mandatory irrespective of your prior skills. We will apply the technologies to actual data.

8. COURSE WORKLOAD

Classroom hours	30h + 8h in the computer class
Class preparation	40h
Individual assignments	48h
Group assignments	34h
Total	160h (6 cr)

9. ETHICAL RULES

Aalto University Code of Academic Integrity and Handling Thereof
https://into.aalto.fi/pages/viewpage.action?pageId=3772443

10. OTHER ISSUES

- Please register via Oodi
- Course materials will be available on MyCourses
- Participation in the sessions is mandatory
- Please read session #1 slides carefully for all kinds of practical information