

Number of ECTS credits : 3

Course language : English

Course leader : LEFIEVRE VALERIE

≡ COURSE DESCRIPTION

This 8-session class delivers the complete skill set for business professionals to create, run and maintain lean and impactful business analysis at the age of Data & Artificial Intelligence. The students will learn to tame their data with the right methods and technologies and move away from tedious manual spreadsheet work. Sustainable and efficient analytics originate from relevant business questions and rely on efficient data collection, strong quality control, holistic models, and impactful reports. This curriculum prepares the students for every step of the way by equipping them with the tools that matter and the practices that deliver. It also covers the aspects of lean process design and change management that are essential to data projects. Every session brings hands-on practice to immediately apply the acquired knowledge to real business cases and includes 1 to 2 hours of homework. At the end of this series, the students will have practiced in data wrangling, data modeling, data visualization, and even Machine Learning and will be ready to make their work even more data-driven.

≡ COURSE OBJECTIVES

Learn the core foundations of business analytics, acquire the critical skills to run impactful, ethical and sustainable analytics from a data, technology, management and lean process design perspective, apply knowledge to concrete data cases.

≡ LEARNING OBJECTIVES

C4B learning goal	LG1 - Analysis
C4B learning objective	LO2 - Analyse complex situations
Outcomes	Lev. 3 - Support one's conclusions and issue well-reasoned recommendations

≡ TACKLED CONCEPTS

The digital, data & AI revolution: foundations, objectives. The concepts of digital Darwinism.

- The strategic challenge to ask the right business questions and the questions right at the data driven ageAnalytics at the service of business issues
- Technology at the service of analytics: transactional and decision-making systems, Decision-making solutions, their role in the performance of analytical processes
- Project management for analytics projects
- Data structures and data models to build holistic views of business problems (with hands-on cases)
- Data preparation to refine data and automate complex manual tasks (with hands-on cases)
- Advanced analytics and visualization applied to business (with hands-on cases)
- Management of change and leadership in a digital age
- Lean process design

≡ LEARNING METHODS

- Key note sessions
- PowerPoint Slides
- Live hands-on cases on analytics solution
- Videos to review key concepts and hands-on case solutions
- Home work supported by TA

≡ EXPECTED WORK AND EVALUATION

Students will need to:

- Score right on 3 out of 5 questions on pop quizzes at each classes
- Score over 75% of the final quiz
- Deliver the hands-on work on the 2 final cases

≡ BIBLIOGRAPHY

≡ EVALUATION METHODS

100 % : Continus Assessment

≡ SESSIONS

1 **Introduction. Understand the urge for mastering data and business analytics** LECTURE & CASE STUDIES : 02h00

Why so much ado about data?

- Data is More strategic than you think
- The concept of Digital Darwinism
- How do you start your transformation?
- Is Raw Data like Crude Oil?
- How to Become Data-Efficient

Ask the right question and the question right

- Why does it matter
- Cognitive bias
- Technique to dare asking the right question

What is data?

- Nature of data
 - FAIR and fluid forms of data
 - Cardinal rules in data management
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2 **The technical foundations of Business Analytics** LECTURE & CASE STUDIES & EXERCISES : 02h00

Know your Technology

- Why Technology?
- The 2 families of systems
- The Transactional Systems
- The Decision Systems

Focus on decision support systems

- The Middleware
 - The Database
 - The Analytics Solutions
 - The Reporting Solutions
 - Performance Management and Analytics Applications
 - Decision vs. Transaction – A blurrier line?
 - Implementation and Management of Decisional Solutions
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3 **Master your data: Data collection and modelling to build holistic views** LECTURE & CASE STUDIES & EXERCISES : 02h00

Master your data

“Fluidify” your Data with the right databases

- Database Types (Txt, SQL - Relational DB, Olap - “Multidimensional” DB, Columnar Database, NoSQL)
- What is ACID?

The 3 facets of data

- Structure
 - Role
 - Format
 - The Common Structure of Data Storage
 - The Table
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4 **Master your data: Data collection and modelling to build holistic views** LECTURE & CASE STUDIES & EXERCISES : 02h00

The 4 roles of data

- The Measures
 - The Attributes
 - The Calculations
 - The Keys
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5 Data preparation and advanced analytics techniques (including advanced visualization and Machine Learning)

LECTURE & CASE STUDIES : 02h00

Data preparation and advanced analytics techniques (including advanced visualization and Machine Learning)

- Advanced Data Preparation management
- Master Data Management
- Data Quality management
- Data Governance

Get the Real Big Data Value

- The value of “Big Data”
- Apply AI and Machine Learning to business today
- Advanced visualizations

6 Leadership and change management : what changes and doesn't in a data-driven organization

LECTURE & CASE STUDIES : 02h00

Leadership and change management : what changes and doesn't in a data-driven organization

- Why 70-80 % of data projects fail
- Team Dynamics
- Management and Leadership evolutions
- The Change Curve
- The Sustainability dilemma
- The 4 (secret) Super Powers

7 Lean Process design : how to create a data culture that scales and synergize around process that deliver real value.

LECTURE & CASE STUDIES : 02h00

Lean Process design : how to create a data culture that scales and synergize around process that deliver real value.

- Streamline your “Creeper” Processes
- The Hawthorne Effect: Measurement drives behavior
- Excellence is an art won by training
- The real value of manual spreadsheet-based processes
- Reporting Checklists
- Lean processes and Swarm Intelligence

8 Final cases and introduction to Python and large data set management

PRACTICAL WORK : 02h00