PGE – MSc in Management

BIG DATA FOR BUSINESS

Course Code	MK99	Academic Year	2017-2018

1. COURSE SPECIFICATIONS*

TEACHING LANGUAGE	English
ECTS CREDITS	5
INSTRUCTIONAL DESIGNER	LEVALLOIS Clement
OFFICE HOURS	Tuesdays morning after class in my office or by appointment another day of the week. …
PEDAGOGICAL AND PROGRAM COORDINATOR	PUIGSEGUR Céline
LEVEL	beginner
PRE-REQUISITES	No prerequisite
RULES	Attendance is mandatory. Plagiarism = course is failed.

2. COURSE DESCRIPTION*

Read section 9 (end of this syllabus) for essential information on how to succeed in this course.

The goal of this course is to make of you excellent candidates for business positions offered by tech intensive companies.

The course offers an explanation of the concepts related to "data" which are relevant for a business position: APIs, data visualization, machine learning, network analysis, text mining, big data, data protection, etc… in such a way that you can understand why they are so central to today's economy, and use them proactively.

This course offers a broad view on many topics which are each covered more in depth and in a hands on way at emlyon business school. See http://data.em-lyon.com/teaching-2/ for a full list of courses in data science / coding / advanced tech offered by the school.

3. PROGRAMME LEARNING GOALS AND OBJECTIVES*

3.1. Programme learning goals

- **1** Our graduates are aware/sensitive to a disrupted world
- **2** Our graduates master business basics and disruptive business competencies
- **3** Our graduates develop a creative mindset and are able to make ideas happen
- **4** Our graduates reflect on themselves and project themselves in the future

3.2. Links of the course to the programme objectives*

Learning objectives (LO) of the programme **PGE – MSc in Management**	Course Matching
Graduates of the programme are able to identify key relevant technological, scientific and societal disruptions and apply their insights to business situations, projects or issues.	☒ Yes
Graduates of the programme are able to adopt a global perspective, mindset and competences when dealing with various business situations, projects or issues	☐ Yes
Graduates of the programme know and effectively use basic concepts, knowledge and theories in the main business subjects and are able to integrate them in a systemic approach	☒ Yes
For IDEA and ETD tracks only : - *ETD : Our students acquire advanced knowledge and skills to operate in different European countries* - *IDEA : Our students acquire advanced knowledge and skills to develop innovative ideas and projects*	☐ Yes
Graduates of the programme are able to identify alternative/emergent business concepts, knowledge and theories and are able to apply them to various business situations, projects or issues.	☒ Yes
Graduates of the programme are able to question proven approaches and solutions to business problems and apply creativity and design techniques to enlarge the scope of their analysis, enabling them to bring new creative solutions.	☒ Yes
Graduates of the programme are able to demonstrate a sense of responsibility and upholds their values and principles when dealing with colleagues, instructors, employers or business partners	☒ Yes
Graduates of the programme are able to systematically appraise their learning/working experiences and take active steps to know themselves better in order to develop self-improvement strategies	☐ Yes

4. LEARNING HOURS ANALYSIS*

Type of learning Hours	Distribution (hours)
Face-to-Face (lecture) *(24 hours max)*	18
Online working Hours	6
Individual working hours *(with mentoring or not)*	40
Team working hours *(with mentoring or not)*	20
Evaluation	6
TOTAL	90

5. LEARNING OBJECTIVES / OUTCOMES

5.1. Academic outcomes

5.1.1. Concepts and theories to which participants are exposed during the course*

1	Definition of data, big data, cloud servers,IaaS, PaaS, SaaS, unstructured data, EDI, APIs
2	Definition of Natural language processing, network analysis, data visualization vs infographics
3	Definition of data-centric business models, data - based value creation, data science, machine learning, AI,
4	Definition of data-centric CRM, Internet Of Things, Privacy Shield and GDPR.
5	And more.

5.1.2. Knowledge acquired during the course *

After this course, participants know or master	technical vocabulary of topics relative to data in business
After this course, participants know or master	the stakes of FR and EU frameworks for data protection
After this course, participants know or master	how to design a BMC centered on a data-driven VP
After this course, participants know or master	the basic principles behind AI / machine learning
After this course, participants know or master	the value of data visualization, and more.

5.1.3. Competencies acquired during the course *

After this course, participants are able to	pass a job interview for a business position where understanding of "big data" / new tech and data topics are requested: either a pure player company, or a traditional company which is ongoing its digital transformation
After this course, participants are able to	assess critically the literature and discourses data is pointed as key to the business: what is said? Is it exagerated? Is it innovative?
After this course, participants are able to	decide how to continue their training in data science: which

	courses to take? What's important and why?
After this course, participants are able to	Make productive suggestions in a professional context regarding tech and data projects.
After this course, participants are able to	Discuss with data scientists with credibility as a business person.

5.2. Professional outcomes

5.2.1 Productions/Deliverables participants will be able to present after taking this course*

1	The episode of a podcast featuring an interviewee on a data science projet (group project)
2	
3	

5.2.2 The people that participants will have met or contacted during the course: (professors, guest speakers, tutors, companies, external experts, participants…)

Experts invited in class
The company and the expert where the podcast will be recorded

6. ASSESSMENT OF LEARNING OBJECTIVES*

1. Weekly quizzes (on Brightspace)

These quizzes evaluate the capacity to reason on topics mixing a data x business logic, for each main week of the course.

Grading:

- There are 9 quizzes to take: one per week

- At the end of the term, 3 quizzes will be randomly picked

- The 3 quizzes will be evaluated

-> 2 points per correct answer x 3 answers per quiz x 3 quizzes: max grade is 18.

2. Group project: recording a podcast

Participants will choose a key topic from the course, which they need to prepare before interviewing a specialist of this area. It also provides a deliverable which can be added to the public portfolio of the participant. The ability of the participant to discuss a topic outside of classroom settings can be measured as well.

Grading:

- The group project on podcasts gives a max grade of 32. See the presentation of the group project on Brightspace for the specifics of the evaluation of the podcast group project.

3. Table exam

A two part written exam where the first part evaluates the understanding of concepts from a theoretic / academic point of view, a second part where a case is presented to evaluate the understanding of key concepts in a realistic business context.

Grading:

- Each part of the exam is worth 25 points. Max grade is 50.

7. SEQUENCES DESCRIPTION, LEARNING ACTIVITIES AND ASSIGNMENTS

- **Sept 19**: Session 1: Introduction: what is "data" and how is it relevant to business?
  - **In class activity: presentation by expert from ARTEFACT**

- **Sept 26**: Session 2: Data integration and APIs
  - **In class activity: presentation by expert from TILKEE**

- **Oct 03**: Session 3: CRM and segmentation (3 hours)
  - **In class activity: presentation by expert from ARTEFACT + beginning of hands-on tutorial on software Gephi. Install Gephi before the class and bring your laptops!**

- **Oct 10**: Session 4: Network analysis and text mining
  - **In-class activity: second part of the Gephi tutorial.**

- **Oct 17**: Session 5: Value creation with data & data driven business models
  - **In-class activity: ideation in groups on data-driven models in a given industry**

- **Oct 24**: Session 6: IoT, sensors, localisation and personalization
  - **In-class activity: presentation by expert from (to be announced)**

- **Nov 07**: Session 7: Data visualization
  - **In-class activity: presentation by expert from HEVA**

- **Nov 14**: Session 8: Data management: privacy, security and open data (3 hours)
  - **In-class activity: presentation by expert from HEVA**

- **Nov 21**: Session 9: Data science + Machine learning + AI (3 hours)
  - **In-class activity: presentation of the results of podcasts by each group.**

Evaluation / deadlines:

Quizzes: must be completed each week before the class. For example, the quiz for week 1 must be completed before Sept 19. Quiz close after the deadline and can't be accessed.

+ Group project: the podcast should be online by Nov 21.

+ December: exam session.

8. PEDAGOGICAL RESOURCES AND ACTIVITIES (videos, books, articles, links, etc)*

PEDAGOGICAL RESOURCE/ACTIVITY	RESOURCE LINK
Video lectures hosted on Youtube	https://seinecle.github.io/mk99/
Lectures in pdf, slides, html formats hosted on Github	https://seinecle.github.io/mk99/
Essential readings hosted on Pinterest	https://seinecle.github.io/mk99/

9. OTHER USEFUL INFORMATION

1. How should learn for this class?

This course follows a "flipped classroom" setup: **you must learn the course material before coming to class**. The time in class is devoted to meeting experts from the industry, discovering software or doing group work. Only a short recap of the course material will be done at the beginning of each class.

2. What should I learn?

a) read the lectures of the corresponding week
b) read the "essential readings" of the corresponding week – careful, there can be a lot!
c) take the quiz of the corresponding week.

3. Where is the course material located?

a) The lectures are listed on this website:
https://seinecle.github.io/mk99/

For a given week, you can have several lectures (topics) to read.
Each lecture is available as a web page, a slide, or a pdf. Choose the format that you prefer (pdf are convenient if you prefer to read a printed version, slides are convenient if you revise your lessons on your smartphone for example).

b) The essential readings are also listed on this website:
https://seinecle.github.io/mk99/

Follow the link for each week and it will redirect you to a Pinterest board, containing a list of curated resources. You need to login to Pinterest.

Do not neglect the reading of these resources. This is by getting familiar with the topics, companies, vocabulary and debates discussed in these resources that you will acquire the "big data" culture that you need.

3. How can I get the best grade for the course?

a) Do the weekly quizzes

Write brief and clear answers. Make the readings of the week to ingest this vocabulary, before taking the quizzes. The weekly quizzes count for 18/100 of the final grade. They are available on Brightspace.

b) Don't wait the last minute to prepare your podcast.

Finding a good expert, available for a recording, can be long. Preparing the interview and knowing your subject well takes also a lot of time. Start working on it in September. The podcast group project counts for 38/100 of the final grade.

c) Do the “essential readings” as an integral part of the course.

The bibliography can be neglected because it would be an “accessory” to the course. Definitely not. This course is meant to give you a culture of data which is quite foreign to what is usually taught in regular business textbooks. To acquire this culture, you need to immerge yourself in these readings.

d) If you need clarifications or feel lost, use the office hours.

This course has office hours on Tuesday morning after the class. Visit and ask for clarifications if you need. Don’t wait for the end of the semester.

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Date* : 18/09/2017 **Document status* :** Valid