

MGT-432

**Data science for business**

Dunbar Andrea

Cursus	Sem.	Type
Financial engineering	MA1, MA3	Opt.
Management, Technology and Entrepreneurship minor	H	Opt.
Managmt, tech et entr.	MA1, MA3	Opt.

Language of teaching	English
Credits	6
Withdrawal Session	Unauthorized Winter
Semester	Fall
Exam	During the semester
Workload	180h
Weeks	14
<b>Hours</b>	<b>4 weekly</b>
Lecture	3 weekly
Exercises	1 weekly
<b>Number of positions</b>	<b>50</b>

**Remark**

MA3 only

**Summary**

Students will learn the basic concepts of Data Science so that they can make better business decisions and how data science is being applied to help businesses. Also, how to evaluate the business aspects looking at the problem being solved, the return on investment and implementation.

**Content**

This course introduces students to some of the programming tools used by data scientists to address real world business analytics problems. Accordingly, the course objectives are three fold: (1) to develop an understanding of how Data Science methods can support decision making in business environments; (2) to gain familiarity with how Data Science tools function through experience in addressing real-world problems and programming real-world solutions; (3) to evaluate the strengths and weaknesses of alternative approaches. The course is particularly applicable for students interested in working for, or learning about, data-driven companies.

**Keywords**

Data science; business intelligence, data management & analysis; business analytics; data-driven management

**Learning Prerequisites****Required courses**

Basic statistics and programming skills although not compulsory are strongly encouraged for this course, ideally the student should have taken at least one course of each. As we will do basic coding in Python in this course, some knowledge of Python is also recommended.

**Learning Outcomes**

By the end of the course, the student must be able to:

- Assess / Evaluate 1. Evaluate where data is relevant in business today.
- Analyze 2. Analyze how data can improve business outcomes, and develop arguments to convince stakeholder around data.
- Infer 3. Infer information from data and critically analyse the results with respect to other method for a given business case.

- Compare 4. Compare different business opportunities with respect to each other based on data.
- Examine 5. Examine how business is changing due prevalence of data.

### Transversal skills

- Access and evaluate appropriate sources of information.
- Take feedback (critique) and respond in an appropriate manner.
- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Assess one's own level of skill acquisition, and plan their on-going learning goals.
- Assess progress against the plan, and adapt the plan as appropriate.
- Collect data.

### Teaching methods

Weekly lectures, demonstrations, assignments, and exercises.

### Expected student activities

Attending class regularly to both acquire content and to review problem sets and exercises.

### Assessment methods

40% Individual assignment  
40% Group assignment and project  
20% Final Exam

### Resources

#### Virtual desktop infrastructure (VDI)

No

### Bibliography

There are many open-source materials online which we strongly encourage you to use. The following is the reading material for the course:

Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking by Foster Provost and Tom Fawcett. Published by O'Reilly Media. 1st edition (August 19, 2013) 414 pages  
ISBN-10: 1449361323

Other material will appear during the course, so please stay attentive to this.

### Ressources en bibliothèque

- [Data Science for Business / Provost](#)

### Moodle Link

- <https://go.epfl.ch/MGT-432>