

MGT-432

**Data science for business**

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<b>Cursus</b>	<b>Sem.</b>	<b>Type</b>
Energy Management and Sustainability	MA1, MA3	Opt.
Financial engineering	MA1, MA3	Opt.
Management, Technology and Entrepreneurship minor	H	Opt.
Managmt, tech et entr.	MA1, MA3	Opt.

Language of teaching	English
Credits	4
Withdrawal Session	Unauthorized Winter
Semester	Fall
Exam	During the semester
Workload	120h
Weeks	14
<b>Hours</b>	<b>3 weekly</b>
Courses	3 weekly
<b>Number of positions</b>	<b>45</b>

**It is not allowed to withdraw from this subject after the registration deadline.**

**Remark**

only for MA3

**Summary**

Students will learn core concepts from the field of Data Science that managers can use to make better business decisions. Students will also learn how to apply those concepts to real programming problems.

**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; data analysis; business analytics; python; data-driven management

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

Prior to the start of class, all students must complete a comprehensive course in statistics covering descriptive statistics, analysis of variance, and the OLS linear regression model. Additionally, students must have prior experience with at least one programming language.

**Recommended courses**

It is strongly recommended that students take an introductory course in computer programming prior to taking this course, and that students familiarize themselves with the syntax and data structures of the Python programming language. There are numerous online MOOCs and/or tutorials that can serve this need. A masters-level statistics course, over-and-above the required foundational course in statistics, is also strongly recommended.

**Learning Outcomes**

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

- Formulate data-driven business problems
- Identify methods from Data Science to predict outcomes for such problems
- Manage the development and programming of such models
- Assess / Evaluate the performance of competing models
- Demonstrate their findings to both technical and non-technical decision makers
- Critique the advantages and disadvantages of different data science methods.

### 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, problem sets, and exercises.

### Expected student activities

Attending class regularly to both acquire content and to review problem sets and exercises. Exams will be given during regularly scheduled class hours.

### Assessment methods

- 30% Assignments
- 15% Written midterm exam
- 20% Semester project
- 5% Final presentation
- 30% Written final exam

### Supervision

Office hours	Yes
Assistants	Yes
Forum	No

### Resources

#### Bibliography

Textbook: "Data Science for Business" by Provost & Fawcett. (2013) Publisher: O'Reilly Media; ASIN: B017PNWLKQ

A list of additional readings will be distributed at the beginning of the course.

#### Ressources en bibliothèque

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