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	Unauthorized
Session	Winter
Semester	Fall
Exam	During the semester
Workload	180h
Weeks	14
Hours	**4 weekly**
Courses	3 weekly
Exercises	1 weekly
Number of positions	**50**

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

Remark

MA3 only

Summary

Students will learn how data science can be used to make better business decisions. In doing this we examine the basic data science techniques used in business and how to evaluate them within a business framework. We demonstrate key transversal business concepts through use-cases implementation.

Content

This course introduces students to some of the programming tools and business frameworks used by data scientists to address real-world business problems. Accordingly, the course objectives are threefold: (1) to develop an understanding of how Data Science methods can support the business environments; (2) to gain familiarity with how Data Science tools can be implemented in businesses through experience of real-world business problems; (3) to evaluate the strengths and weaknesses of alternative approaches of implementation and how to evaluate their success. The course is particularly applicable for students interested in working to implement data driven techniques into companies

Keywords

Data science; business intelligence, machine learning, data management & analysis; business analytics; data-driven management, change management, innovation management.

Learning Prerequisites

Required courses

Basic statistics and programming skills although 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 recommended.

Learning Outcomes

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

- Formulate prediction models
- Assess / Evaluate the performance of prediction models

- Describe their findings to others
- Assess / Evaluate where data is relevant in business today.
- Analyze how data can improve business outcomes, and develop arguments to convince stakeholder around data.
- Infer information from data and critically analyse the results with respect to other method for a given business case.
- Compare different business opportunities with respect to each other based on data.
- 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. The teaching in the class is through use-cases, so attendance is highly recommended.

Assessment methods

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

Supervision

Office hours	Yes
Assistants	Yes
Forum	No

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