Course Specifications

Valid as from the academic year 2020-2021

Social Media and Web Analytics (F000799)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size   (nominal values; actual values may depend on programme)

Credits 6.0	Study time 180 h	Contact hrs 45.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	English	Gent	seminar: practical PC room classes	20.0 h
			seminar: coached exercises	5.0 h
			group work	10.0 h
			lecture	10.0 h
			online lecture	0.0 h
			online seminar: coached exercises	0.0 h
			online seminar: practical PC room classes	0.0 h

Lecturers in academic year 2020-2021

Bogaert, Matthias	EB23	lecturer-in-charge

Offered in the following programmes in 2020-2021	crdts	offering
Master of Science in Business Engineering (main subject Data Analytics)	6	A
Exchange programme in Economics and Business Administration	6	A

Teaching languages

English

Keywords

Social media analytics, Web analytics, Network analysis, Sentiment analysis, PageRank, Social Media Optimization, Network visualization

Position of the course

This course focuses on the three levels of social media analytics (network, user, message) and the various aspects related to web analytics. Students will collect their own data from social media and the web and perform several analyses in R. The global objective of the course is to train students in the collection and analysis of social media and web data.

Contents

Topics include, but are not limited to:

Social Media Analytics: the Network
- Network analysis (e.g., adjacency: Euclidean, Manhattan, kernel methods: rbf kernel, QAP regression, Exponential-Family Random Graph Models)
- Network visualization (e.g., Fruchterman-Reingold)
- Network clustering (e.g., Walktrap, edge betweenness method)
- Describing networks in numbers (e.g., density, transitivity, degree, betweenness)
- Data collection from social media

Social Media Analytics: the User
- Event attendance prediction (e.g., Random Forest, Partial Dependence)
- Social media optimization (e.g., Genetic Algorithm)
- Tie strength

- Movie wachting behavior

Social Media Analytics: the Message
- Text mining
- Word clouds
- Sentiment analysis
- Retweet analysis
- Word networks
- Topic modeling
- Word embeddings

Web Analytics:
- PageRank
- Web crawling
- Web Mining

Initial competences

Mastery of the basics of R.

Final competences

1 Thorough understanding of theoretical concepts in social media and web analytics.
2 Extracting data from social media and the web.
3 Analysis of social media and web data.
4 Interpreting and communicating results, conclusions and the business value of social media and web analysis.
5 Be proficient in R to do the computations.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, lecture, microteaching, seminar: coached exercises, seminar: practical PC room classes, online lecture, online seminar: coached exercises, online seminar: practical PC room classes

Learning materials and price

Learning materials are a slides, (scientific) papers, and cases. Everything will be available complimentary on the online platform Ufora.

References

Several scientific articles:
- Newman, M. E. J., Girvan, M., Feb. 2004. Finding and evaluating community structure in networks. Physical Review E 69 (2), 026126.
- Fruchterman, T. M., Reingold, E. M., 1991. Graph Drawing by Force-directed Placement. Software-Practice and Experience 21 (11), 1129–1164.
- Lismont, J., Ram, S., Vanthienen, J., Lemahieu, W., & Baesens, B. (2018). Predicting interpurchase time in a retail environment using customer-product networks: An empirical study and evaluation. Expert Systems with Applications, 104, 22-32.
- Ballings, M., Van den Poel, D., 2015. CRM in social media: Predicting increases in Facebook usage frequency. Eur. J. Oper. Res. 244, 248–260.
- Ballings, M., Van den Poel, D., Bogaert, M., 2016. Social media optimization: Identifying an optimal strategy for increasing network size on Facebook. Omega-Int. J. Manage. Sci. 59, 15–25.
- Bogaert, M., Ballings, M., Van den Poel, D., 2016. The added value of Facebook friends data in event attendance prediction. Decis. Support Syst. 82, 26–34.

Course content-related study coaching

Several group exercises are solved and discussed during the sessions. Students receive extensive tutoring and feedback.

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination

Examination methods in case of periodic evaluation during the second examination period

Written examination

Examination methods in case of permanent evaluation

Oral examination, assignment, peer assessment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

The group project is a comprehensive exercise in a realistic context where the key concepts used in social media analytics are applied.
The written exam will investigate whether the student knows and understands the aspects of social media and web analytics that were discussed during class. Both theoretical exercises as well as applications will be part of the exam.

Calculation of the examination mark

Written exam (40%) + permanent evaluation (group project and presentation) adjusted by peer assessment (60%)