UCLouvain

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Business Analytics

The version you're consulting is not final. This course description may change. The final version will be published on 1st June.

5.00 credits	30.0 h	Q1

Teacher(s)	Hazée Simon ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	*Basic knowledge in mathematics and statistics (including multivariate statistical analysis using supporting statistical software)*.
Learning outcomes	**At the end of this learning unit, the student is able to :** The main objective of this course is to help students become reflective, responsible business leaders making sound data-driven decisions. This course accordingly helps bridge the gap between managers and data scientists. In particular, students – after taking this course – should be able to: • Understand the current digital ecosystem and the important role of data in business; • Understand what is big data, what sources can be used for data collection, and what types of data are available for analysis; • Understand the "big data" challenges, from data extraction and transformation (e.g., database connections and query) to data analysis and interpretation; • Define ethical guidelines for the use of personal customer data. • Identify the right data and digital analytics techniques for specific business problems; • Understand and conduct specific statistical techniques for digital data analysis; • Obtain insights from data and turn them into strategic decision-making; • Assess return on business efforts/investments;
Evaluation methods	Students' performance is assessed on a **continuous basis**; grades will be based on assignments (both individual and team assignments), class participation and a group project; the latter includes a projet report and oral presentation. *Important notes*: • Grades attained through the team assignments and group project can be individualized according to each member's investment • By submitting an assignment for evaluation, students assert that (i) it accurately reflects the facts and to do so students need to have verified them, especially if they originate from generative AI resources (which students must explicitly mention as a support tool for their work); and (ii) students have respected all specific requirements of their assigned work, in particular requirements for transparency and documentation of process. If any of these assertions are not true, whether by intent or negligence, students have violated their commitment to truth, and possibly other aspects of academic integrity. This constitutes academic misconduct.
Teaching methods	The course includes theoretical lectures, case studies, practical exercises, and guest lectures by practitioners from top companies. This CEMS course is practice-oriented. Most concepts and analytical techniques discovered throughout this course will be taught through use-cases and how-to examples, using different business intelligence and statistical software. The professor reserves the right to adapt the course format and eventually opt for a blended learning format that combines online and in-class activities. Students are required to carry out preparatory work prior to some sessions, and to take an active role in class discussions
Content	In today's digital economy, an unprecedented vast amount of data is available to companies, including for instance data on how consumers feel, behave, interact with brands, and respond to business efforts. Data is even being called the "oil" of the digital economy. How to effectively leverage data to support business decisions yet remains a key challenge for numerous companies. This course accordingly explores the growing important role of data in business and how companies can develop competitive advantages and achieve impact through data. This course teaches widely-used frameworks of business analytics including descriptive analytics, predictive analytics, and inquisitive analytics (experimentation). Students then implement these frameworks through exercises and case studies to solve various business problems related to customer behavior/churn prediction, digital ads optimization, website traffic prediction, and business performance assessment, among others. Students

	will learn and use these techniques to leverage and turn data into relevant business insights. Particular attention is paid to corporate digital responsibility, that is the legal and ethical issues behind data gathering, storage and usage. This course covers techniques such as: • data preparation and reporting with Excel (Power query, pivot tables, etc.); • data visualization and advanced reporting with business intelligence tools such as Tableau; • statistical data analyses and machine learning (e.g., decision trees, linear and logistic regression, clustering) with R and the open-source KNIME Analytics Platform. The ultimate goal of this course is to help students become "link creators", that is people who have the ability to envision how data can be used to enhance the business and create value, have enough mastery of business analytics to be able to lead discussions with data specialists, and have the ability to act on that vision by making sound data-driven responsible decisions.
Bibliography	*Recommended readings* ***Textbooks:*** • Evans, J. (2020), “Business Analytics”, 3rd edition, Pearson Educations. • Provost, F., & Fawcett, T. (2013), “Data Science for Business – What You Need to Know About Data Mining and Data-Analytic Thinking”, O'Reilly Media Inc. • Tan, P-N et al. (2021), “Introduction to Data Mining”, 2nd edition, Pearson Educations. • Hayasaka, S. & a Silipo, R. (2022), “KNIME Beginner's Luck”, KNIME. ***Scientific and managerial articles (exhaustive list available on Moodle):*** • Balducci, B., & Marinova, D. (2018), "Unstructured data in marketing", *Journal of the Academy of Marketing Science*, 46, 557-590. • Bradlow, E., Gangwar, M., Kopalle, P., & Voleti, S. (2017), “The Role of Big Data and Predictive Analytics in Retailing”, *Journal of Retailing*, 93(1), 79-95. • Davenport, T. H. (2006). “Competing on Analytics”, *Harvard Business Review*, 1-11. • George, G., Osinga, E., Lavie, D., & Scott, B. (2016), "Big Data and Data Science Methods for Management Research", *Academy of Management Journal*, 59(5), 1493-1507. • Gupta, S., Leszkiewicz, A., Kumar, V., Bijmolt, T., & Potapov, D. (2020), "Digital Analytics: Modeling for Insights and New Methods", *Journal of Interactive Marketing*, 51, 26-43. • Lobschat, L., Müller, B., Eggers, F., Brandimarte, L., Diefenbach, S., Kroschke, M. and Wirtz, J. (2020), “Corporate digital responsibility”, *Journal of Business Research*, forthcoming. • Van Auken, S. (2015), “From Consumer Panels to Big Data: An Overview on Marketing Data Development”, *Journal of Marketing Analytics*, 3(1), 38-45. • Villarroel Ordenes, F. and Silipo, R. (2021), "Machine learning for marketing on the KNIME Hub: The development of a live repository for marketing applications", *Journal of Business Research*, 137, 393-410. • Wedel, M., and Kannan, P.K. (2016), “Marketing Analytics for Data-Rich Environments”, *Journal of Marketing*, 80(6), 97-121.
Other infos	***<u>This course is exclusively reserved for CEMS students of the LSM.</u>***
Faculty or entity in charge	CLSM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Management [CEMS Programme]	GEST2M	5		🔍
Master [120] : Business Engineering [CEMS Programme]	INGE2M	5		🔍