





Teacher(s)	Verardi Vincenzo ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	1 basic marketing course
Main themes	<p>Humanity has generated and stored more data in the last 24 months than in the millions of years before that. World's data production, analysis, and consumption are growing exponentially and this trend is not slowing down anytime soon.</p> <p>In such environment understanding and working with data has become crucial for companies to survive, innovate and grow. For this reason, companies are more and more demanding of data literate workforce - and marketing is no exception.</p> <p>The fundamental pillars of marketing' acquire and retain customers - will not change, but the means available to marketers to achieve their objectives are changing fundamentally. This course will introduce one of the most promising new mean available to marketers to achieve their objectives: Big Data analysis.</p> <p><i>Themes that will be addressed are:</i> Big data, Data mining, Artificial Intelligence</p>
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p><i>On successful completion of this program, each student will acquire the following skills :</i></p> <ul style="list-style-type: none"> • Knowledge, reasoning and critical thinking • Project management • Communication and interpersonal skills • Leadership and team working <p>1</p> <ul style="list-style-type: none"> • Analytical skills <p><i>At the end of this course, you should be able to understand and use big data in order to:</i></p> <ul style="list-style-type: none"> • Identify growth opportunities. • Personalise and automate marketing efforts. • Understand and implement most commonly used machine learning techniques in marketing.
Evaluation methods	<p>The evaluation consists of two parts</p> <ol style="list-style-type: none"> 1. A written exam (closed book) that weights for 60% of the total. This exam will cover all the material seen in class (both theoretical and more applied). 2. A team project on some specific marketing questions chosen by the students that weights for 40% of the total. The software used for this course is a "no code" open source software called orange (https://orangedatamining.com/). No programming skills are a priori needed but students that would like to input some additional python code can do it using some specific python widgets (this is however generally not needed). Several tutorial for using efficiently orange are available on orange's youtube channel (https://www.youtube.com/@OrangeDataMining) <p>Only the written exam (part 1) can be retaken in the second session in case of failure. The grade for part 2 (the team project) will be automatically carried over to the second session.</p>
Teaching methods	<p>This course will cover the theory of some popular methods in data mining and machine learning with practical applications in marketing. No programming skills are needed. The idea of the teaching is that the instructor will present the theory behind the methods and illustrate how these methods are applied in marketing.</p> <p>For theoretical classes, the slides used are made available in Moodle. More specific references are provided during the lectures or in the slides.</p> <p>As several practical cases are presented in the theoretical lectures, all the the data source and workflows will be made available on Moodle so that students can reproduce the results.</p>
Content	<p>The content of the lectures will be divided into 3 Chapters:</p> <ol style="list-style-type: none"> 1. Introduce the notion of big data and data management (data storage, relational databases, noSQL, AI) 2. Data Mining (supervised and unsupervised learning, predictive analysis, dimension reduction)

	<p>3. Text and image mining (topic modeling, text classification, keyword extraction, trend analysis, image analysis) In all the chapters the theory behind the methods is presented. A illustration of their use in marketing is systematically presented.</p>
Inline resources	<p>All the slides presented in class as well as the workflows and data source will be made available via Moodle. Some specific additional references that could be interesting for students will be provided in class or in the slides.</p>
Bibliography	<p>Slides are provided through Moodle. No compulsory reading is needed for this course other than the slides. However some specific references are provided in class for those interested. Many datasets used in class come from https://www.kaggle.com/ The (free) software used can be downloaded at: https://orangedatamining.com/. Many explanations for the methods used are available in orange's youtube channel (https://www.youtube.com/@OrangeDataMining)</p>
Other infos	<p>Students are expected to have a good understanding of statistics and mathematics (BA level). No programming skills are needed as a "no code" solution has been adopted for the practical work (https://orangedatamining.com/) The team project will be evaluated on the basis of a written document and, possibly, an oral presentation, the details of which will be explained during the course. The datasets used and the workflow implemented have to be described in the document and made available (probably via Moodle) for the evaluation. Potential sources for data will be discussed in class. In this course, we promote the responsible and critical use of generative AI. If these tools are used, it is crucial to explicitly indicate their application and properly acknowledge all relevant sources.</p>
Faculty or entity in charge	CLSM

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Management	GESM2M	5		
Master [120] : Business Engineering	INGE2M	5		
Master [120] in Management	GEST2M	5		
Master [120] : Business Engineering	INGM2M	5		
Master [120] in Management (with work-linked-training)	GESA2M	5		