llsmf2013

2017

Data Analytics applied in Business (Names from A to K)

5 credits	30.0 h	Q2

Teacher(s)	Kolp Manuel ;Saerens Marco ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	Nowadays, data are everywhere. For most organizations, potentially every area of its business, as well as every relationship related to its business, can now be quantified and recorded. Such amount of data led to the emergence of powerful methods for storing, processing, querying, and extracting useful information/knowledge from these data. This course will be focused on methods for data understanding, design, management, preparation, modeling, querying, and visualization, as a global means for the organization of making better decisions. As a central element in data analytics, modeling and methodology will play an important role in this course, including, e.g., data design for business intelligence analytics, predictive modeling, or fitting statistical models to data.
Aims	**Having regard to the LO of the programme, this activity contributes to the development and acquisition of the following LO:** • Appliquer une démarche scientifique (3.1 à 3.5) • Gérer un projet (7.1 à 7.3) 1 **At the end of this course, students should be able to :** • Understand and evaluate the scope, the risks, and the opportunities of data analytics within a company; • Understand and apply the standard methods and methodologies, coming both from computer sciences and statistics, for managing, exploiting, and analyzing these data; • Extract useful information & knowledge supporting decision-making from these data; • Analyze and interpret the obtained analytical results. - - - - *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods	**Continuous evaluation** • Date: Will be specified later • Type of evaluation: Project with rapport • Comments: 40% of the final result **Evaluation week** • Oral: No • Written: No • Unavailability or comments: No **Examination session** • Oral: No • Written: Yes • Unavailability or comments: 60% of the final result
Teaching methods	Classical courses and case studies
Content	The scope of the course is broad and the instructor will certainly not be able to cover all of the material concerning data analytics in business. Depending of his background, interests and experience, he will focus on some specific techniques or skim through a broad range of methods. Potential covered topics are (but not limited to): database design for data analytics, business intelligence techniques, dimensionality reduction for data visualization, extracting recurrent patterns from data, cluster analysis, predictive modeling (supervised classification and regression methods), modeling relationships by latent variable techniques, data analysis algorithms scaling to big data, etc. All these techniques must be illustrated through business applications.

Bibliography	**Potential sources:** • Provost & Fawcett (2013) 'Data science for business'. O'Reilly. • Sherman (2014) 'Business intelligence guidebook: from data integration to analytics'. Morgan Kaufmann. • Efraim, Sharda & Delen (2010) 'Decision support and business intelligence Systems'. Pearson. • Leskovec, Rajaraman & Ullman (2014) 'Mining of massive datasets, 2nd ed'. Cambridge University Press. • Kelleher, Mac Namee & D'Arcy (2015) 'Fundamentals of machine learning for predictive data analytics. MIT Press. • Hastie, Tibshirani & Friedman (2009), "The elements of statistical learning, 2nd ed". Springer-Verlag. • Izenman (2008), 'Modern multivariate statistical techniques: regression, classification, and manifold learning. Springer. • Bellanger & Tomassone (2014), "Exploration de données et méthodes statistiques : data analysis & data mining avec le Logiciel R". Ellipses.
Faculty or entity in charge	CLSM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Business Engineering	INGE2M	5		🔍
Master [120] in Population and Development Studies	SPED2M	5		🔍
Master [120] in Business Engineering	INGM2M	5		🔍
Additional module in computer science	LSINF110P	5		🔍