Data Science				14X026
Svyatoslav VOLOSHYNOVSKYY (PO), Stéphane MARCHAND-MAILLET (PAS)				
Nombre d'heures par semaine	cours	2	Semestre d'automne	☒
	exercices	2	Semestre de printemps	
	pratique	2	Total d'heures	84

Cursus	Type	Crédits ECTS
Master en sciences informatiques (120 ECTS)	obligatoire	6

OBJECTIFS :

This course presents theoretical and applied tools for Data Analysis and Information Processing, as basis for theoretical Data Science. It provides a solid theoretical basis in Linear Algebra, Probabilities and Statistics and Information Theory for most subsequent courses, including Machine Learning.

The course addresses challenges of data analysis and information processing in noisy and high-dimensional context, supervised or unsupervised.

CONTENU :

- Reminder on Linear Algebra and Probabilities
- Curse of Dimensionality, Concentration Phenomena
- Classical Data Analysis tools: PCA, LDA, FCA, kMeans, EM
- Basis of Temporal Data analysis: AR models
- Review on Information Theory
- Hypothesis Testing
- Estimation Theory

Forme de l'enseignement	Obligatory course, integrated exercises and practical work
Documentation	Course notes, website, list of reference books
Préalable requis	-
Préparation pour	-
Mode d'évaluation	Oral
Sessions d'examens	JF/AS