## Descriptif de l'enseignement

**Nom, Prénom de l'enseignant :**
LANGLOIS-BERTHELOT Jean / BOISSET Marc-Olivier

**Titre de l'enseignement (dans la langue principale de l'enseignement) :**
Data Mining & Big Data: Anticipation Stratégique & Appui à la décision

**Titre de l'enseignement en anglais :**
Data Mining & Big Data: Strategic Anticipation & Decision-making support

**Langue principale de l'enseignement :**
Anglais

**Pré-requis :**
(Facultatif, ***300 caractères maximum***, dans la langue principale de l'enseignement)
This course is without prerequisites

**Présentation de l'enseignement et des objectifs pédagogiques :**
(Obligatoire, ***800 caractères maximum***, dans la langue principale de l'enseignement)

In the end of the course the student will be able to:

- Understand the functioning of data mining tools and their contributions to managerial professions
- Master the use of dynamic search tools on the open web and on the dark web.
- Use the proper tools according to the objectives sought
- Master the latest trends and innovations in Business Analytics
- Analyze the opportunities offered in terms of data mining by artificial intelligence and IoT

**Modalités d'évaluation :**
(Obligatoire - ***300 caractères maximum***, dans la langue principale de l'enseignement)

- **Oral evaluation:** a 2 or 3 student team selects a subject from a defined list and presents it during 20 minutes. (coefficient 3)
- **Reading report :** the student selects a book in a list then, explains the main topic of the book in 5 or 6 pages report.(coefficient 3)
- **Writing final evaluation:** several questions about the courses. (coefficient 3)
- **Courses participation** (coefficient 1)

**Lectures demandées :**


- Elgendy, N., & Elragal, A. (2016). Big Data Analytics in Support of the Decision Making Process. Procedia Computer Science, 100, 1071-1084.
- Alloing, C., & Deschamps, C. (2011, June). Veille stratégique et internet participatif: les usages des agents-facilitateurs remettent-ils en question le concept de signal faible?. In Colloque Spécialisé en Sciences de l'Information (COSSI), Management de l'information: défis et tendances
- Tufféry, S. (2017). Data Mining et statistique décisionnelle, Technip Editions (Parties I, II, III,V)
- Deprins, D. (2017). Le Gouvernement des hommes par la donnée. In Cycle de conférences 2016-2017 de l'UDA (Université des Aînés).
- Aguiton, C., Cardon, D., (2007), The strength of weak cooperation: An attempt to understand the meaning of web 2.0, Communications & Strategies Vol. 65, pp. 51 - 65
- Anderruthy, J-N., (2009). Techniques de veille et e-réputation: comment exploiter les outils Internet?, Editions ENI, Paris. (Introduction, Première Partie et Conclusion)
- Daniel Sui, D., Caverlee, J., Rudesill, D.,(2015). The Deep Web and the Darknet: a look inside the internet's massive black box, Wilson Center Analysis (https://www.wilsoncenter.org/publication/the-deep-web-and-the-darknet)
- Stobing, C., (2017).Using deep web search engines for academic and scholarly research, Comparitech (https://www.comparitech.com/blog/vpn-privacy/using-deep-web-search-engines-for-academic-research/

- Khedr, A. E., Salama, S. E., & Yaseen, N. (2017). Predicting Stock Market Behavior using Data Mining Technique and News Sentiment Analysis. International Journal of Intelligent Systems and Applications (IJISA), 9(7), 22-30
- Jennex, M. E., (2017) Big Data, the Internet of Things, and the Revised Knowledge Pyramid,, ACM SIGMIS Group
- Shu, K., Sliva, A., Wang, S., Tang, J., & Liu, H. (2017). Fake News Detection on Social Media: A Data Mining Perspective. ACM SIGKDD Explorations Newsletter, 19(1), 22-36.
- Zhao, B., & Sui, D. Z. (2017). True lies in geospatial big data: detecting location spoofing in social media. Annals of GIS, 23(1), 1-14
- Adler, B. T., & De Alfaro, L. (2007, May). A content-driven reputation system for the Wikipedia. In Proceedings of the 16th international conference on World Wide Web (pp. 261-270). ACM


**Lectures complémentaires / filmographie / discographie :**


- Ziora, A. C. L. (2015). The Role of Big Data Solutions in the Management of Organizations. Review of Selected Practical Examples. Procedia Computer Science, 65, 1006-1012.
- Bishop, M. (2006). Pattern Recognition and Machine Learning, Springer, pp. 38-48
- Costa, E. B., Fonseca, B., Santana, M. A., de Araújo, F. F., & Rego, J. (2017). Evaluating the effectiveness of educational data mining techniques for early prediction of students' academic failure in introductory programming courses. Computers in Human Behavior, 73, 247-256.
- Abdou, S., & Savoy, J. (2007). Considérations sur l'évaluation de la robustesse en recherche d'information. In Actes 4ème Conférence en Recherche d'Information et Applications CORIA'07 (pp. 5-30). ARIA (Association Francophone de Recherche d'Information et Applications).
- Bloch, E. (2012). Communication de crise et médias sociaux: Anticiper et prévenir les risques d'opinion-Protéger sa e-reputation-Gérer les crises. Dunod.
- Dube, R., (2014). Journey into the Hidden Web: A Guide For New Researchers. (http://www.makeuseof.com/tag/journey-into-the-hidden-web-a-guide-for-new-researchers/)
- Chertoff, M. (2017). A public policy perspective of the Dark Web. Journal of Cyber Policy, 2(1), 26-38
- Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. International Journal of Information Management, 35(2), 137-144.
- Leech, N. L., Collins, K. M., & Onwuegbuzie, A. J. (2017). Collecting Qualitative Data to Enhance Social Network Analysis and Data Mining.
- Kleindienst, D. (2017). The data quality improvement plan: deciding on choice and sequence of data quality improvements. Electronic Markets, 1-12.
- Steinhardt, J., Koh, P. W., & Liang, P. (2017). Certified Defenses for Data Poisoning Attacks. arXiv preprint arXiv:1706.0369


**Plan des séances (12) :**

**I-Data Mining & Big Data : What inputs for the next generation of decision makers ? (4h)**

- Session 1 Big Data: Massification of data flows, disappearance of weak signals: the décision-maker lost in cyberspace.
- Session 2 Data Mining: Analyze to Understand, Plan to Decide.

**II-Intelligent data monitoring: In search of information in cyberspace (6h)**

- Session 1 Dynamic monitoring on the open Web
- Session 2 Finding information on the Deep Web
- Session 3 Practical Workshop

**III- Business Analytics : Improving the performance of financial analysis (6h)**

- Session 1 Choosing the most efficient method for data analysis
- Session 2 Data Analysis Systems
- Session 3 Practical Workshop

**IV-Data Mining and Artificial Intelligence: Future Prospects and Limits (4h)**

- Session 1 New opportunities for Data Mining with the development of artificial intelligence and IoT
- Session 2 Data-Mining and partitioning processes: the risk of auto-intoxication

## V- Perspectives and final evaluation (4h)

- Session 1 Final evaluation
- Session 2 Perspectives