



BUSINESS INTELLIGENCE

CODE: **ENST55008**

CREDIT HOURS: **40 HOURS**

TEACHER: **Cláudio Luís Carvalho Larieira**

General Objective

Enable the student to diagnose, solve or forward solutions to real problems using data from different sources, integrating them with internal information, with the practice of Business Intelligence, aiming at the effectiveness of the organization's results and supporting decisions related to innovations in products, processes and services, seeking the development of the organization.

Specific Objectives

- Enable the student to search and analyze data that help to characterize the reality of the identified opportunity, regarding its demand, prices, quality, distribution, image, competition and other relevant aspects from reliable databases.
- Enable the student to obtain and process internal and external data that affect the use of the opportunity considering the decision-making regarding the adequacy of the organization's resources, capabilities and processes, to ensure effective results.
- Understand the importance of information in organizations, for the integration of innovation with the development of new markets.
- Understand why visually represented data is useful to decision-makers.
- Use technological resources to interactively visualize the data collected in organizations.

Focus and Approach

The focus of the course is centered on issues related to the use of data, information, and knowledge for the management of technology and innovation integrated with the needs of the market, using technological resources for data analysis and visualization.

The approach of the course is theoretical-practical, with the use of systems for decision-making support, collection, analysis and visualization and data mining, which provides a space for discussion and practice of methods and techniques more appropriate to applications aimed at solving concrete issues.



Program Content:

- 1) Introduction to Business Intelligence.
- 2) Fundamentals of Data Analysis
- 3) Data Visualization – Concepts and Practices
- 4) Predictive Analytics and Trends
- 5) Scenario Analysis and Simulations
- 6) Dynamic Dashboards and Reports
- 7) Practical Applications for BI in Business
- 8) Project Development using BI

Teaching-learning strategy

- Basic procedures: reading, group discussions, teacher presentations, and preparation of partial and final papers.
- Communication process by group dynamics, for which students should read and reflect on the indicated texts and discuss in the classroom.
- The practical activities consist of developing solutions using available tools: Excel, Jamovi, Power-BI.

BIBLIOGRAPHY

Note: **F** = physical edition in Mackenzie's libraries

D = digital edition in Mackenzie libraries

A = Article available in the Mackenzie University databases, or Google Scholar.

da Costa Neto, L. G., & de Campos, F. C. (2023). Oportunidades de aplicações de Business Intelligence no contexto da indústria 4.0: revisão sistemática da literatura 2015-2020. *Exacta*, 21(2), 503-519. (**A**)

Davenport, T. (2014) *Big Data no Trabalho. Derrubando Mitos e Descobrendo Oportunidades*. Rio de Janeiro: Elsevier. (**F**)

Jameel, B., & Majid, U. (2018). Research fundamentals: Data collection, data analysis, and ethics. *Undergraduate Research in Natural and Clinical Science and Technology (URNCST) Journal*, 2 (4), 1–8. (**A**)

Kahneman, D. (2012) *Rápido e Devagar: Duas Formas de Pensar*. Rio de Janeiro: Objetiva. (**F**)

Kotronoulas, G., Miguel, S., Dowling, M., Fernández-Ortega, P., Colomer-Lahiguera, S., Bağçivan, G., ... & Papadopoulou, C. (2023, April). An overview of the fundamentals



of data management, analysis, and interpretation in quantitative research. *In Seminars in oncology nursing* (Vol. 39, No. 2, p. 151398). WB Saunders. **(A)**

- Kumar, V., & Garg, M. L. (2018). Predictive analytics: a review of trends and techniques. *International Journal of Computer Applications*, 182(1), 31-37. **(A)**
- Majumder, R. Q. (2025). Machine Learning for Predictive Analytics: Trends and Future Directions. *Available at SSRN 5267273*. **(A)**
- Midway, S. R. (2020). Principles of effective data visualization. *Patterns*, 1(9). **(A)**
- Paltsev, S. (2017). Energy scenarios: The value and limits of scenario analysis. *Wiley Interdisciplinary Reviews: Energy and Environment*, 6(4), e242. **(A)**
- Panda, K., & Agrawal, S. (2024). Predictive analytics: an overview of evolving trends and methodologies. *The Journal of Scientific and Engineering Research*, 8(10), 175-180. **(A)**
- Parsons, P. (2021). Understanding data visualization design practice. *IEEE Transactions on Visualization and Computer Graphics*, 28(1), 665-675. **(A)**
- Perez, G., & Medeiros Jr., A. (2014) Processo Decisório e Sistemas de Informação. In: Prado, E.P.V., & Souza, C.A. (organizadores) *Fundamentos de Sistemas de Informação*. Rio de Janeiro: Elsevier. **(F)**
- Reilly, M., & Willenbockel, D. (2010). Managing uncertainty: a review of food system scenario analysis and modelling. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1554), 3049-3063. **(A)**
- Sharda, R., Delen, R. & Turban, E. (2019) *Business Intelligence: enfoque gerencial em inteligência de negócios*. Porto Alegre: Bookman. **(F, D)**
- Silva, L.A. (2015) *Mineração de Dados*. São Paulo: Mackenzie. **(F)**
- Silva, L.A., Peres, S.M., & Boscariolli, C. (2015) *Introdução em Mineração de Dados – com aplicações em R*. São Paulo: Elsevier. **(F, D)**