

SYLLABUS

QM404E_0101_26

Introduction to Data Analytics Specializations

ACADEMIC AREA :	OPERATIONS AND ANALYTICS
PROGRAMME :	MASTER DAIS / PGE / UGTC LEVEL 4 PGE
PERIOD :	SPRING
COORDINATOR :	Dr. Nadjib BRAHIMI
INSTRUCTOR(S) :	Dr. Nadjib BRAHIMI
CONTACT HOURS :	15.0 hours
STUDY TIME :	null hours (Class preparation, homework and assessments)
CREDITS :	2.0 ECTS
AOL :	NO

PRE-REQUISITE MODULES :

Programming and statistics courses.

Course should be under the form of seminars during the first 4 weeks of the semester.

MODULE DESCRIPTION :

This course introduces the students to the different business areas where data science and artificial intelligence can play a crucial role. It also introduces students to possible new specializations that might be added to the program including, for example, cyber security management. Students will have the opportunity to attend seminars by professors and professionals in different specializations (finance, marketing, supply chain management, etc.) and interact with them. The course will be rich in examples and case studies. It will also give a brief overview of some techniques used in each specialization.

CONTRIBUTION TO PROGRAMME LEARNING OBJECTIVES :

- Integrate disciplines and deep knowledge to Create innovative solutions #CreateSolutions
- Leverage the economic, ecological, social performance of the firm and its operations to Change Business models #ChangeBusiness

MODULE INTENDED LEARNING OUTCOMES (ILOs) :

1. Understand the Foundations of Each Specialization
2. Evaluate Specializations Based on Career Goals and Interests
3. Develop Practical and Analytical Skills

TOPICS COVERED :

Career landscape of the specializations

Business Analytics specialization: Case studies and introduction to used techniques

Financial Analytics specialization: Case studies and introduction to used techniques

Cybersecurity specialization: Case studies and introduction to used techniques

RESEARCH-LED TEACHING :

CSR AND SUSTAINABLE DEVELOPMENT GOALS :

CSR NB HOURS :

SUSTAINABLE DEVELOPMENT GOALS COVERED :

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TEACHING METHODS :

The teaching method combines interactive lectures, hands-on activities, presentations by professionals and, eventually, field trips. Case studies and real-world examples are used to demonstrate the relevance of each field and to provide practical problem-solving experience. Students work both individually and in groups to reflect on their learning, apply analytical tools, and evaluate industry challenges.

METHODS OF ASSESSMENT :

Continuous/Final	Group/Individual	Assessment	Weight	Duration	ILOs assessed
Continuous	Individual	Individual Final Exam in class	60%		1, 2, 3
Continuous	Group	Participation or task completion	40%		1, 2, 3

Assessment 1 details:

Each student compiles a portfolio that demonstrates their understanding of the different specializations, culminating in their reasoned selection of a preferred specialization. The portfolio includes: exploration reflections (300-500 words on each specialization), a comparative analysis (1000 words comparative essay), and an action plan.

Assessment 2 details:

Students work in groups to analyze a real-world problem in each specialization. For example:

- o Business Analytics: Create a marketing or supply chain optimization solution using sample data.
- o Finance Analytics: Conduct a basic time series analysis of stock prices or portfolio risk.

Deliverables: A written report (3–4 pages) and a short presentation (10–15 minutes).

ACADEMIC INTEGRITY :

Academic misconduct encompasses various behaviors or actions that violate the principles of academic integrity, fairness, and honesty, thereby undermining the credibility of academic work, assessments, or research. Examples of academic misconduct include:

- Cheating
- Plagiarism
- Fabrication
- Gaining an unfair advantage
- Assisting others in committing academic misconduct, such as by utilizing generative AI
- Falsification of records or official documents
- Unauthorized access to restricted information or data
- Unauthorized or unethical use of generative AIS

Academic misconduct is a serious offense and can result in consequences such as module failure, research project failure, or even expulsion from the school. To prevent unintentional academic misconduct, it is essential to consult with your instructor to understand the specific rules and instructions pertaining to the use of AI in learning and assessment.

For more comprehensive information on academic integrity rules, principles, and disciplinary procedures, please refer to the Academic Integrity section of the Student Handbook.

BIBLIOGRAPHY :

“Cybersecurity for Executives: A Practical Guide” by Gregory J. Touhill and C. Joseph Touhill. Ebook [<https://bit.ly/3YTzPyp>]

“Financial Analytics with R” by Mark J. Bennett and Dirk L. Hugen

“Data Science for Business” by Foster Provost and Tom Fawcett [ebook <https://urls.fr/lyQNYe>]

“Marketing Analytics: Strategic Models and Metrics” by Stephan Sorger

“Supply Chain Management” by John T. Mentzer

Additional Reading

MODULE PLAN SESSIONS :

Plan Session 01 :

Course introduction and career landscape of the specializations

Plan Session 02 :

Business analytics specialization (Marketing and OM)

Plan Session 03 :

Finance Analytics overview

Plan Session 04 :

Cybersecurity specialization or and extension of details about the previous specializations

Plan Session 05 :

Integrative reflection and students presentations