



Supply Chain 4.0

2026-2027

Credits: 3

Code: 62002A-00036

Language of Instruction: English

Faculty

Name: Rafael Ascanio

Email: rafael.arevaloascanio@uantwerpen.be

Name: Milena Janjevic

Email: mjanjevi@mit.edu

Name: Stijn Michielsens

Email: stijn.michielsens@uantwerpen.be

Name: Matthias Winkenbach

Email: mwinkenb@mit.edu

Learning Outcomes

LO2	<i>program specific</i>	The Master in GSCM uses quantitative methods, simulation tools, and optimization models to solve complex supply chain problems and support data-driven decision-making.
	<i>course specific</i>	You build and evaluate forecasting and optimization models in Python, using train-test metrics and mathematical formulations to support data-driven supply chain decisions.
LO3	<i>program specific</i>	The Master in GSCM analyzes, designs, and manages international logistics flows, distribution systems, and production networks with attention to efficiency, resilience, and sustainability.
	<i>course specific</i>	You formulate and solve network flow and facility location models to redesign a multi-echelon distribution network while balancing capacity, demand, service and transport cost.

LO4	<i>program specific</i>	The Master in GSCM assesses the impact of emerging technologies, data analytics, automation and AI-enabled tools on supply chain performance and leads digital transformation initiatives.
	<i>course specific</i>	You compare machine learning, reinforcement learning and generative AI applications and assess their implications for supply chain visibility, resilience, automation and human decision-making.
LO	<i>course specific</i>	

Course Content

This 5-day intensive course equips participants with a hands-on introduction to the tools and methodologies needed to leverage modern analytics for data-driven decision-making in supply chains. The course will cover the technical foundations of common descriptive, predictive, and prescriptive supply chain analytics methods, and will provide participants with hands-on experience in how to implement machine learning and optimization models and apply them to real-world supply chain problems.

Prerequisites

- Familiarity with supply chain concepts
- Basic understanding of Python (functions, data manipulation) - in preparation for this course, participants are asked to complete a custom introductory course to Python online that provides the necessary basics for the Python activities required from students in-class (10 to 15h of content).

Method of Instruction

Lectures

Discussion

Exercises

Practice Sessions

Assessment Method & Criteria

Written Exam

100%

Study Materials

none