

Data and the World

Prof. Anita Ramachandran



Course Description

This course examines how data has evolved into a powerful driver of decisions, safety, and strategy in today's world. You will explore how data impacts daily life, fuels innovation, and enables smarter choices across industries. Through practical case studies such as Citibank's fraud detection, Amazon's event planning, Netflix's personalised recommendations, and quick commerce logistics, you will see how predictive models, recommender systems, and demand forecasting work in practice.

You will also discover the role of natural language processing and large language models like ChatGPT in shaping modern search and communication. By the end, you will understand why data is a critical asset and the building blocks of data-enabled systems.



References

- No textbooks needed! Every module includes ready-to-use notes from Prof. Anita.

Trimester: **01**

Credits: **01**

Weeks: **04**

THE EVOLUTION OF DATA

» Key Topics

- ◆ The evolution of data through time
- ◆ Factors driving today's data explosion
- ◆ Role of machine intelligence in the data era
- ◆ Data as a pervasive force in everyday life



» Learning Activities



Live Session

- Date:



Practice Quiz

- Learn by doing: 1 practice quiz to strengthen your foundation!

DATA IN ACTION: POWERING LIFE, SAFETY & STRATEGY

» Key Topics

- ◆ The role of data in everyday life and decision-making
- ◆ Predictive and prescriptive uses of data
- ◆ Fraud detection in financial institutions (Citibank case)
- ◆ Machine learning, biometrics, and anomaly detection in fraud prevention
- ◆ How Amazon leverages data for demand forecasting and customer behaviour insights
- ◆ Applications of time-series analysis, predictive modelling, and dynamic pricing in large-scale sales events

» Learning Activities



Live Session

- Date:



Practice Quiz

- Learn by doing: 1 practice quiz to strengthen your foundation!

HOW DATA SHAPES CONSUMER CHOICES

» Key Topics

- ◆ How Netflix uses recommender systems for personalised suggestions
- ◆ User segmentation, data mining, and sentiment analysis in streaming platforms
- ◆ Quick commerce strategies for achieving 10-minute deliveries
- ◆ Demand forecasting, supply chain optimisation, and route planning
- ◆ Using behavioural and geospatial data for personalised sightseeing recommendations
- ◆ Data fusion techniques for recommendations, even on basic phones

» Learning Activities



Assignment

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Live Session

- Date:



Practice Quiz

- Learn by doing: 3 practice quizzes to strengthen your foundation!



MAKING SENSE OF DATA – FROM SEARCH TO SIMPLIFICATION

» Key Topics

- ◆ Why ChatGPT is emerging as an alternative to traditional search engines
- ◆ The role of natural language processing (NLP) and large language models in ChatGPT
- ◆ Positioning data as a critical asset for organisations
- ◆ Key elements of a data-enabled system for decision-making and strategy

» Learning Activities



Live Session

- Date:



Practice Quiz

- Learn by doing: 2 practice quizzes to strengthen your foundation!