

QBUS300001

Foundations and Applications of Machine Learning

Program : Global Summer Program

Term : Summer 2024

Duration : June 24, 2024 - July 19, 2024

Contact Hours : 54

Fudan Credits : 3

Teaching Modes and Locations:

Modes: Offline + Online

Location: Offline at Fudan University / Online with no specific place

Course Description:

It is now common for businesses to have access to very rich information data sets, often generated automatically as a by-product of the main institutional activity of a firm or business unit. Data Mining deals with inferring and validating patterns, structures and relationships in data, as a tool to support decisions in the business environment. This unit offers an insight into the main statistical methodologies for the visualization and the analysis of business and market data. It provides the tools necessary to extract information required for specific tasks such as credit scoring, prediction and classification, market segmentation and product positioning. Emphasis is given to business applications of data mining using modern software tools.

Course Goals:

1. understand the basic concepts and principles of probabilistic machine learning
2. master the design and implementation of machine learning systems
3. learn to evaluate and improve the performance of machine learning systems
4. develop the ability to solve practical problems and apply machine learning

Prerequisites:

No prerequisites.

References:

Domingos, P. (2012). A Few Useful Things to Know about Machine Learning. Communications of the ACM, 55(10), 78-87.

Huyen, C. (2022). Designing Machine Learning Systems. O'Reilly Media, Inc

Schedule:

Lecture	Date	Topic
1	June 24 - July 19, 2024	Introduction to Machine Learning Fundamentals
2		Supervised Learning: Basics and Algorithms
3		Unsupervised Learning: Concepts and Techniques
4		Model Evaluation and Validation
5		Feature Engineering and Selection
6		Deep Learning and Neural Networks
7		Ensemble Learning Methods
8		Practical Considerations in Machine Learning
9		Ethical and Social Implications of Machine Learning
10		Machine Learning in Real-World Applications
11		Future Trends and Directions in Machine Learning
12		Final Exam / Thesis

Assessment:

Assessment Task	Weighting
1. Attendance & Participation	20%
2. Assignments & Presentation	30%
3. Final Exam / Thesis	50%

Grading Scale:

Grades	A	A-	B+	B	B-	C+	C	C-	D	F
100	90-100	85-89	82-84	78-81	75-77	71-74	66-70	62-65	60-61	<60

The instructor will use the grading system as applied by Fudan University.

Credit Point Value:

Component	Contact Hours	Fudan Credits
Academic Lectures	44	3
Thesis/Exam	4	
Field Trip	3	
Seminar	3	
Total	54	

At Fudan University, the duration of one contact hour is 45 minutes, and 18 contact hours are equivalent to 1 credit.

Note: The document is subject to change at the discretion of School of Management, Fudan University.