MIS4321 Computational Finance and Algorithmic Trading

Semester	Fall 2025
Instructor	Mahmut Bağcı
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Course Description	This course covers the algorithmic trading strategies, backtesting, financial data processing, statistical learning, time series analysis for forecasting, performance analysis of forecasting algorithms, risk management, practical implementation of event and strategy based trading algorithms.

Week	Topics
1	What Is Algorithmic Trading?
2	Fundamentals of Algorithmic Trading
3	Trading Strategies
4	Evaluating Trading Strategies and Backtesting
5	Financial Data Storage
6	Processing Financial Data
7	Application Tools and General Review
8	**Midterm Exam**
9	Statistical Learning
10	Forecasting
11	Implemantation of Arbitrage Strategies
12	Implemantation of Rebalancing Strategies
13	Event-Driven Trading Engine Implementation
14	Trading Strategy Implementation
15	General Review
	Final Exam

Assesments	Number	Percentage
Participation*	14 weeks	(10% of midterm and 10% of final exam)
Midterm Exam	1	50 %
Final Exam	1	50 %
Sources		1. Algorithmic trading and quantitative strategies, by Raja Velu, Maxence Hardy, and Daniel Nehren,Boca Raton, FL, Chapman and Hall, 2020, CRC Financial Mathematics. 2. Learn Algorithmic Trading, by Sebastien Donadio, Sourav Ghosh, Birmingham (UK), 2019, Packt Publishing.

*Participation will be measured by lecture attendance.

If you miss more than 4 classes, you can't take your final exam!

Office hours: Monday 13:00 -15:00 PM, Wednesday 13:00 -14:00 PM