Shanghai University of Finance and Economics Teaching schedule for the first semester of the 2025-2026 academic year

School of Statistics and Data Science and other Schools **Finance related** Major 2022-2023 Class Senior Students Course Name **Optimization in Finance** Total Teaching Hours 32 Class hours in this semester 32 （Teaching 32 Hours，Class Exercise, Computer Practice 0 Hours, Other 0 Hours）Course Code **106276** Course Sequence Number **0356** Instructor **Sirong Luo** Teaching Assistant **Sirong Luo**

Week		Teaching		Homework	
		Contents	Hours	Assignment	Time
1	9/8	§1& §2: Introduction to Optimization Models	2		
		Types of Optimization Models Financial Optimization Models Linear Programming: Theory& Algorithms			
2	9/15	§3 LP Model: Asset-Liability Model	2	**HW1**	**4**
		Fixed Income Portfolio Dedication & Immunization Bonds & Cash Flow Problems		Chapter1-4	
3	9/22	§4 LP Model: Arbitrage and Asset Pricing	2		
		Arbitrage Bonds Asset Pricing: Binomial Pricing Model Bond Portfolio Management'			
4	9/29	§5-6 Quadratic Programming: Mean-Variance Model	2	**HW1 Due**	
		Duality and Optimality Conditions Markowitz Mean-Variance Model Analytical Solutions of Mean-Variance Model Estimation of Inputs to Mean-Variance Model Performance Analysis			
5	10/6	Holiday	2		
6	10/13	§7 Sensitivity of Mean-Variance Model	2	**HW2**	4
		Black-Litterman Model Shrinkage Estimation Robust Optimization		Chapter5-11	
7	10/20	§8-9 MIP: Portfolios with Constraints	2		
		Combinatorial Auctions Constructing an Index Fund Cardinality Constraints Minimum Position Constraints Risk-Parity Portfolios and Clustering			
8	10/27	§10-11 Stochastic Programming: Risk Measures	2	**HW2 Due**	4
		Stochastic Optimization Model Two-Stage Stochastic Optimization The L-Shaped Method			

		Risk Measures Key Property of CVaR Portfolio Optimization with CvaR			
9	11/3	§12 Multi-Period Model	2	**HW3**	
		Kelly Criterion Dynamic Portfolio Optimization Execution Costs		Chapter12-15	
10	11/10	§13 Dynamic Programming: Theory & Algorithms	2		
		Bellman's Principle of Optimality Linear-Quadratic Regulator Sequential Decision Problem with Infinite Horizon			
11	11/17	§14 Multi-Period Portfolio Optimization	2		
		Optimal Consumption and Investment Dynamic Trading with transaction Costs Dynamic Portfolio Optimization with Taxes			
12	11/24	§15 Dynamic Programming: Binomial Pricing Model	2	**HW3 Due**	**4**
		Binomial Lattice Model Option Pricing Option Pricing in Continuous Time			
13	12/1	§16-§17 Multi-Stage Stochastic Programming	2	**HW4**	
		Multi-Stage Stochastic Programming Scenario Optimization and Generation Asset-Liability Management The Case of an Insurance Company Option Pricing via Stochastic Programming		Chapter16-20	
14	12/8	§19 Robust Optimization	2		
		Uncertain Sets Techniques for Solving Robust Optimization Models Robust Optimization Models in Finance			
15	12/15	§20 Nonlinear Programming	2		
		Optimality Conditions Algorithms Estimating a Volatility Surface			
16	12/22	Review and Presentation	2	**HW4 Due**	4
		Summary and Review Paper Presentation			
17/18		2025/12/29--2026//01/09	**Final Exam**		
			4	**Paper Submission**	
TextBook		《Optimization Methods in Finance》Second Edition, Gerard Cornuejols, Javier Pena, Reha Tutuncu, Cambridge University Press, Inc, USA			
Reference		《Optimization in Operations Research》 Second Edition, Ronald L. Rardin, Pearson. USA			

注：本 表一式四份，一份送教研室，一份送讲课班级，一份送教务处，一份讲课教师自留。 教研室主任.....