

1.	Title of the course	Statistical Finance
2.	Course number	MA625L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To MA6030/12
6.	To be offered by	Department of Mathematics and Statistics
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	Course Objective(s): To formulate financial terminologies mathematically and explore their properties. To introduce essential statistical and probability methods to solve the mathematical formulation. To analyze and apply real-life financial data via the calculus of finance.	
10.	Course Content: Binomial no-arbitrage pricing model, capital asset pricing model, binomial model for interest rate, Black-Scholes-Merton formula, evolution of portfolio value, evolution of option value, put-call parity, value of portfolio process under the risk-neutral measure, hedging with one stock, continuously paying dividend, interest rate models, forward contract, future contract, forward-futures spread, forward price, term structure models, expected shortfall, value at risk.	
11.	Textbook(s): 1. Habib A, <i>Calculus of Finance</i> , 1st Edition, Universities Press (2011). 2. Hull J C, <i>Fundamentals of Futures and Options Markets</i> , 8th Edition, Pearson (2017).	
12.	Reference(s): 2. Prado and M L, <i>Advances in Financial Machine Learning</i> , 1st Edition, Wiley (2018). 3. Shreve S E, <i>Stochastic Calculus for Finance I: The Binomial Asset Pricing Model</i> , 1st Edition, Springer (2004). 4. Shreve S E, <i>Stochastic Calculus for Finance II: Continuous-Time Models</i> , 1st Edition, Springer (2004).	