

St. Xavier's University, Kolkata
Faculty of Science
Value-Added/Skill Enhancement Courses to be Offered
By
Department of Statistics

Course Name: Computer Applications in Statistics and Finance

Credit: 2

Duration: 30 contact hours

Start Date: 07.08.2024

End Date: 07.11.2024

Mode of Class (Online/Offline/Hybrid): Offline

Intake Capacity: 30

Full Marks (FM): 100

Marks (QM): 50

Enrolment Date: 02/08/2024

Eligibility: Pursuing Graduate & above

Course Coordinator(s): Dr. Aniket Biswas & Dr. Priyanka Talukdar

About the Course:

This course aims to develop practical skills in data analysis, mathematical finance, and simulation techniques using MS Excel and R. Students will learn to use Excel for data management, visualization, and advanced functionalities like LOOKUP functions and the Data Analysis Tool Pack. The course covers financial concepts such as simple and compound interest, annuities, and their applications in real-world scenarios like loans and installments. Additionally, students will explore simulation techniques in R, including generating random observations and sampling from various statistical distributions, enabling them to model and analyze complex data scenarios effectively.

Syllabi of the Course:

Module No.	Module Name	Topic(s)
1	MS-EXCEL	Layout of Excel Worksheet. Data Tools: Remove Duplicates. Simple Cell Functions: SUM, Average, MAX, MIN, Count.

		<p>Column/Row Operations.</p> <p>Transforming Raw Data to Frequency Table.</p> <p>Data Visualization using Charts.</p> <p>Introduction to LOOKUP functions in Excel.</p> <p>Excel Add-ins: Data Analysis Tool Pack.</p>
2	Mathematical Finance using MS-EXCEL	<p>Interest-Simple and Compound.</p> <p>Interest (Annual, Semi-annual, Monthly and Continuous Compounding).</p> <p>Annuity-Concept and Applications.</p> <p>Present value and Future value.</p> <p>Applications in Loan payment, Interest and Installments.</p>
3	Simulation Techniques using R	<p>Linear congruence method. Generation of random observations from Uniform(0,1).</p> <p>Probability integral transform. Generation of random observations from the exponential and the Cauchy distributions.</p> <p>Sampling from the Binomial and the Poisson distributions.</p> <p>Sampling from the normal, Chi-square, t and F distributions.</p>