Mathematical Finance & Data Science Certification Program

Overview

Lantern Institute's Mathematical Finance and Data Science program is designed to build the foundation necessary to secure a job in the data science and finance industries. To do so, the program focuses on the in-demand analytical and software skills used within these industries. The training is project and assignment based with an emphasis on practicality. Students will learn using real data sets and course projects are designed to prepare them for their future interviews and careers. Throughout the program, advisors will give lectures on soft skills training including personalized career coaching, resume editing, and interview preparations. Following a successful completion of the program students will work to find jobs through our partners' networks.

Streams

Lantern Institute offers two streams to help students customize their learning to their future career. Stream 1 is designed for students with limited programming experience and is geared towards analytical positions. Stream 2 is designed for students with an intermediate programming background and is geared towards positions in the data science field.

Students in good standing are able to further customize their training to suit their future career path by taking courses outside of their stream. This may look like a stream 1 student taking financial mathematics, or a student taking every course we offer.

Students receive guidance throughout the fundamental training from instructors, advisors, and the Program Director to help them pick the right stream. This choice will also be dictated by the students' performance in the fundamental training.

Syllabus

	Topics	Hrs	Description	Lecturer
Fundamental Training (90 hrs)	Fundamental of Statistics using R	30	Teaches basic concepts of statistics such as interpreting data, probability distributions, and time series. R is used to solve practical data analysis problems such as regression analysis	From RBC
	Databases and SQL querying	4	Introduction to the structure of databases and how to work with them including SQL querying, and data indexing, sorting and cleansing.	From RBC, Manulife
	Introduction to Quantitative Finance	10	Teaches basic concepts in finance such as risk management	From RBC
	Python Programming	10	Teaches Python with tools such as numpy and Pandas and includes topics like debugging, OS operations and DataFrames.	From Manulife
	Excel with VBA	10	Teaches Excel VBA and Macros with a focus on finance	From RBC
	Data Visualization with Tableau	6	Teaches the fundamentals of Tableau including how to present data and importing from other programs	
	Soft Skills Training	20+	Personalized career coaching, interview prep, resume editing, etc.	From BMO
Stream 1 (10 hrs)	Data analysis and regression analysis using Excel	10	Teaches advanced Excel techniques for data and regression analysis	From RBC
Stream 2 (52 hrs)	Advanced Python	10	Teaches finance with Python, web-app development, and an introduction to cloud computing	Manulife
	Financial Mathematics	18	Teaches fundamental financial mathematics concepts and tools including Value-at Risk, bonds and credit risk.	From BMO
	Machine Learning	24	Teaches machine learning tools and techniques including deep learning, decision trees and KNN. It will also teach big data software including Spark.	From Scotiabank