

University of Bahrain

Deanship of Graduate Studies  
& Scientific Research



جامعة البحرين

عمادة الدراسات العليا والبحث  
العلمي

**College of Business Administration**

Department of Economics and Finance

**Master in Financial Technology - 2020**

COURSE NO.	COURSE TITLE	CH
<b>BACKGROUND COURSES</b>		
-	-	-
-	-	-
-	-	-
<b>CORE COURSES</b>		
FIN641	FUNDAMENTALS OF FINANCIAL TECHNOLOGY	3
FIN642	BLOCKCHAIN AND APPLICATIONS	3
FIN643	PAYMENTS AND CRYPTOCURRENCIES;	3
FIN644	CYBER SECURITY/ CRYPTOGRAPHY	3
FIN 645	BIG DATA IN FINANCE	3
FIN646	FINANCIAL ANALYTICS AND MACHINE LEARNING	3
FIN620	CORPORATE FINANCE	3
FIN622	PORTFOLIO MANAGEMENT AND INTERNATIONAL INVESTMENTS	3
QM650	RESEARCH METHODS AND STAT. ANALYSIS	3
FIN694	CAPSTONE CONSULTING PROJECT	6



**AACSB**  
ACCREDITED

## **Course Descriptions**

### **FIN620: Corporate Finance (3 credits)**

Corporate finance is at the heart of investment and crucial to running a successful business in any sector. In this course, all the key elements of company finance, valuation and risk management will be covered. The course can assist in understanding how to assess individual investment projects, value companies, and evaluate the sources of finance available to companies.

### **FIN622: Portfolio Management and International Investment (3 credits)**

Selecting suitable investment policies and strategies, balancing asset classes, integrated risk management, efficient diversification, market efficiency, measuring and attributing performance for an investment portfolio; analyzing international assets and techniques and using them both opportunistically (tactically) and strategically; specific risks of global investing such as country, political, currency, convertibility, liquidity and settlement; analyze key issues in managing emerging market portfolios.

### **FIN641: Fundamentals of Financial Technology (3 credits)**

This course provides a core foundational understanding of Financial Technology applications. It will start by talking about a new taxonomy of innovations that had affected the financial industry. It will then examine how bitcoin, and hence all blockchain and smart contract applications work, which together with big data techniques are used in FinTech. By the end of these course it will provide a full understanding for how, why, and when banks, financial institutions and other firms can benefit from using these technologies as a way of making payments more efficient, improving user experience, tokenizing assets and setting up secure smart contracts.

### **FIN642: Blockchain and applications (3 credits)**

This course aims to acquire and integrate the fundamental principles of Blockchain technology. It allows students to identify the business opportunities and potential threats that this ecosystem experience. This course also presents the tools necessary to develop a strategic reflection specific to the specific needs of financial organizations.

### **FIN643: Payments and Cryptocurrencies (3 credits)**

Electronic payment is a tool of carrying out commercial transactions for the exchange of goods or services on the Internet. This course examines cryptocurrencies and blockchain and their emergence and role in financial markets. The course covers the common principles underlying the blockchain technology on which the cryptocurrencies are based on. It will show how these new financial instruments and technologies are disrupting traditional ways of doing business.

### **FIN644: Cyber Security/ Cryptography (3 credits)**

Computer security breaches that affect financial systems are becoming increasingly frequent. Many of these breaches are easily preventable if proper security principles are effectively used. This course will present a set of core principles to follow for a future in which computer security plays a significant role in using and designing computer based financial systems.

### **FIN645: Big Data in Finance (3 credits)**

Over the past few years, there has been an explosion of interest in the use of large datasets and new empirical techniques to make financial decisions of all kinds. In this elective this course examines how

the combination of large datasets, empirical techniques including machine learning, and insights from behavioural finance are helping in making more efficient financial decisions. Two areas in which progress has been especially rapid are credit analytics, and asset management. This elective focuses on these specific markets, considering them from supply, demand, and regulatory perspectives.

**FIN646: Financial Analytics and Machine Learning (3 credits)**

This course will comprise three main building blocks: basic econometrics, statistics and probabilistic theory and introduction to machine learning in finance. The first part deals with the basic principles of mathematics and statistics for econometric analysis such as random variables, univariate and multivariate discrete and continuous distributions, expectations and moments, hypotheses testing, estimation and properties of estimators, and time series. Topics will include measures theory, an introduction to probability theory and its applications, diffusions, Markov processes and martingales, as well as stochastic differential equations. The course aims to build basic knowledge in to critically address and use standard financial methods and terminologies of the day-to-day activity in financial markets, and to set the stage for further analysis of cutting-edge research in financial modelling.

**QM650: Research Methods and Statistical Analysis (3 credits)**

Introduction to business research, research process, problem definition and the research proposal, design of research strategies, questionnaire design, sampling procedures, sources, collection and presentation of data; hypotheses testing; bivariate and multivariate analyses; nonparametric significance test, and presenting results in written reports.

**FIN694: Capstone Consulting Project (6 credits)**

The project is an independent research work that aims to apply the knowledge and skills students have learned in the classroom to help a client during the Consulting Project in Financial Technology. Student needs to contact a client and a supervisor and manage the whole relationship with them. The project topics may vary but they should involve a description of the real-life problem, review of the literature, and appropriate data analysis and modelling to develop and findings and recommendations.