



UNIVERSITY
of
TECHNOLOGY,
MAURITIUS

School of Accounting Finance and Economics

BSc (Hons) Financial Risk Management

PROGRAMME DOCUMENT

VERSION 2.0

BFRM v2.0

July 2013

University of Technology, Mauritius
La Tour Koenig, Pointe aux Sables, Mauritius
Tel: (230) 207 2750 Fax: (230) 234 6219
Email: safe@umail.utm.ac.mu website: www.utm.ac.mu

A. Programme Information

After the recent financial crisis, there has been a major concern about financial risk facing the world. The financial markets have now realised the importance of analysing financial risk and the different techniques of managing these risks. Hence, this has caused a huge demand across modern financial markets for sophisticated risk managers and financial analysts. This degree fully prepares students to become competent risk managers, traders or analysts in any area of finance. It will provide them with in-depth knowledge of modern investment and risk management practices, and their applications in equity markets, bond trading, derivatives hedging, investment banking, hedge funds and many other areas of global markets. They will acquire a sound knowledge of the theoretical foundations that underpin modern investment and risk management techniques.

B. Programme Aims

The programme is predominantly work-oriented and is designed to meet the exigencies of the work place. It is intended to provide knowledge, understanding and intellectual skills, together with practical skills relating directly to the subject and a range of transferable skills that will equip students for a career in the area of portfolio management, investment mathematics, corporate treasury, research, hedging and trading, financial econometrics and corporate finance. The course structure has been designed in such way that the first year provides an introduction to financial markets, accounting, economics and quantitative methods. Students also gain an understanding of the tools used in applied investment analysis, and enhance their mathematical, statistical and computing skills.

The second year develops the theoretical knowledge of students and enables them to interpret financial data through the use of advanced statistical tools, and to formulate and solve complex problems in finance. Students will gain a thorough understanding of the framework for the measurement of risk and return. The course makes an introduction to econometrics and its application to modeling and testing in finance. The final year will enable students to deepen their knowledge of investment, finance and risk.

C. Programme Objectives

The programme objectives are to:

- allow students to follow a blend of specialist and generalist aspects of the financial risk management.
- equip students with appropriate conceptual and analytical tools in the relevant field and provide opportunities for the development and application of these tools.
- inculcate the foundation and more advanced theories and also bring in the latest of the financial innovation, financial engineering, strategies and concepts in the above mentioned field.
- prepare students in undertaking research in the field.
- produce graduates who will occupy key positions in the financial services sector.

PART I - Regulations

D. General Entry Requirements

As per UTM 'Admissions Regulations' and 'Admission to Programmes of Study at Degree Level'

Either

- (i) Cambridge School Certificate, including Mathematics
- (ii) Cambridge Higher School Certificate with at least 2 'A' level subject

OR

(iii) Cambridge School Certificate, with credit in 5 subjects including English and Mathematics and at least 3 years relevant work experience in the field

E. Programme Entry Requirements

Same as above.

F. Programme Mode and Duration

Full Time: 3 Years

Part Time: 4 1/2 Years

G. Teaching and Learning Strategies

The programme will employ a wide variety of teaching methods, including lectures, individual or group projects, presentations, workshops, case studies, field visits, work placement and talks by guest speakers. Self-learning will be the key feature of the programme, enabling students to explore, investigate and research into the various topics, interact with practitioners, and work in teams on projects.

H. Student Support and Guidance

In addition to traditional lectures, group tutorials or individual tutorials are arranged for students.

I. Attendance Requirements

As per UTM's Regulations and Policy.

J. Credit System

Modules carry 3 or 4 credits as per the programme structure. Irrespective of the number of credits allocated, each and every module will be assessed on 100 marks. Modules with 4 credits must compulsorily involve submission of at least 2 assignments.

Exit Points:

Minimum credits required for the award of a :

- Certificate = 36
- Diploma = 72
- Degree = 108

Please note that electives will only be offered if there is a minimum of 10 students.

K. Student Progress and Assessment

For the award of the Degree all modules must be passed overall with passes in the examinations, coursework and other forms of assessment.

All modules will carry 100 marks and will be assessed as follows (unless otherwise specified):

Written examinations up to 3-hours' duration and continuous assessment carrying up to 30% of total marks.

Continuous assessment can be based on seminars, practical labs and/or assignments or class tests.

Level 3 modules may be assessed through continuous assessment up to 50% of total marks

Grading

Grade	Marks x (%)
A	$x \geq 70$
B	$60 \leq x < 70$
C	$50 \leq x < 60$
D	$40 \leq x < 50$
F	$x < 40$
A-D	Pass
F	Fail

L. Evaluation of Performance

The percentage mark at Level 1 contributes a 20% weighting towards the degree classification.

The percentage mark at Level 2 contributes a 30% weighting towards the degree classification.

The percentage mark at Level 3 contributes a 50% weighting towards the degree classification.

M. Award Classification

$y \geq 70$	1st Class Honours
$60 \leq y < 70$	2 nd Class 1st Division Honours
$50 \leq y < 60$	2 nd Class 2 nd Division Honours
$45 \leq y < 50$	3rd Class Honour
$40 \leq y < 45$	Pass Degree
$y < 40$	No Award

N. Programme Organisation and Management¹

Programme Director: As per the School.

Contact Details: safe@umail.utm.ac.mu

¹ This programme has been mounted by Mrs A. Boolaky , Dr K. Padachi and Mr Y. Sunechur from the Department of Economics and Finance in collaboration with Mrs K. Dookhan and Mr A. Odit.

Part II - Programme Structure

O. BSc (Hons) Financial Risk Management Full Time (Version 1.0)

Semester 1		YEAR 1				Semester 2			
Code	Core Modules	Hrs/Wk		Credits	Code	Core Modules	Hrs/Wk		Credits
		L	P				L	P DS	
MGMT 1102	Business Management	2	1	3	QUAN 1102	Statistics	2	1	3
ECON 1101	Economics	2	1	3	ACCF 1117	Accounting for Finance	2	1+1	4
QUAN 1202	Quantitative Methods	2	1	3	MGMT 1103	Business Communication	2	1	3
ACCF 1201	Principles of Finance	2	1	3	ACCF 1127	Equity and Fixed Income	2	1	3
QUAN 1302	Introduction To Calculus and Linear Algebra	2	1	3	ACCF 1302	Domestic and International Banking	2	1+1	4
					ACCF 1202	Introduction to International Finance	2	1+1	4
→	<i>Start of Level 1</i>				<i>Finish of Level 1</i>				→
Semester 1		YEAR 2				Semester 2			
Code	Core Modules	Hrs/Wk		Credits	Code	Core Modules	Hrs/Wk		Credits
		L	P DS				L	P DS	
ACCF 2305	Offshore Practice and Administration	2	1	3	ACCF 2306	Options and Derivatives I	2	1+1	4
ACCF2304	Financial Services and Corporate Law	2	1	3	ACCF 2204	Corporate Finance	2	1+1	4
QUAN 2303	Investment Mathematics	2	1+1	4	QUAN 2415	Research and Statistical Methods	2	1+1	4
ECON 2501	Introductory Econometrics	2	1	3	ACCF 2128	Corporate Governance and Financial Reporting	2	1+1	4
ACCF 2118	Management Accounting for Decision Making	2	1+1	4	ACCF 2129	Risk Based Auditing	2	1	3
→	<i>Start of Level 2</i>				<i>Finish of Level 2</i>				→

Semester 1				YEAR 3				Semester 2			
Code	Core Modules	Hrs/Wk L P DS	Credits	Code	Core Modules	Hrs/Wk L P DS	Credits				
ECON 3502	Financial Econometrics	2+1+1	4	QUAN 3304	Financial Engineering	2+1+1	4				
ACCF 3307	Options and Derivatives II	2+1+1	4	ACCF 3309	Security Analysis and Portfolio Management	2+1+1	4				
ECON 3601	International Business Environment	2+1+1	4	MGMT 3302	Strategic Business Planning and Management	2+1+1	4				
ACCF 2227	Risk Management and Investment	2 + 1	3								
DISS 3000	Dissertation*			DISS 3000	Dissertation*		9				
→	<i>Start of Level 3</i>				<i>Finish of Level 3</i>				→		

** Dissertation starts Semester 1 of level 3 and credits will be earned at the end of Semester 2 of level 3

P. BSc (Hons)– Financial Risk Management Part Time (Version 1.0)

YEAR 1							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L P	Credits	Code	Modules	Hrs/Wk L P DS	Credits
MGMT 1102	Business Management	2 + 1	3	QUAN 1302	Introduction To Calculus and Linear Algebra	2 + 1	3
ECON 1101	Economics	2 + 1	3	QUAN 1102	Statistics	2 + 1	3
QUAN 1202	Quantitative Techniques	2 + 1	3	ACCF 1117	Accounting for Finance	2 + 1+1	4
ACCF 1201	Principles of Finance	2 + 1	3	MGMT 1103	Business Communication	2+1	3
<i>Start of Level 1</i>							
YEAR 2							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L P DS	Credits	Code	Modules	Hrs/Wk L P DS	Credits
ACCF 1127	Equity and fixed income	2 + 1	3	ACCF 2305	Offshore Practice and Administration	2+1	3
ACCF 1302	Domestic and International Banking	2 + 1+1	4	ACCF 2304	Financial Services and Corporate Law	2 + 1	3
ACCF 1202	Introduction to International Finance	2 + 1+1	4	QUAN 2303	Investment Mathematics	2 + 1+1	4
<i>Finish of Level 1</i>				<i>Start of level 2</i>			
YEAR 3							
Semester 1				Semester 2			
Code	Modules	Hrs/Wk L P DS	Credits	Code	Modules	Hrs/Wk L P DS	Credits
ECON 2501	Introductory Econometrics	2 + 1	3	ACCF 2204	Corporate Finance	2 + 1+1	4
ACCF 2118	Management Accounting for Decision Making	2 + 1+1	4	QUAN 2415	Research and Statistical Methods	2 + 1+1	4
ACCF 2306	Options and Derivatives I	2 + 1+1	4	ACCF 2128	Corporate Governance and Financial Reporting	2 + 1+1	4
				ACCF 2129	Risk Based Auditing	2+1+1	4
<i>Finish of Level 2</i>							→

YEAR 4							
				Semester 2			
Semester 1							
Code	Modules	Hrs/Wk L P DS	Credits	Code	Modules	Hrs/Wk L P DS	Credits
ECON 3502	Financial Econometrics	2+1+1	4	ACCF 2227	Risk Management and Investment	2 + 1	3
ACCF 3307	Options and Derivatives II	2+1+1	4	QUAN 3304	Financial Engineering	2+1+1	4
ECON 3601	International Business Environment	2+1+1	4	ACCF 3309	Security Analysis and Portfolio Management	2+1+1	4
				DISS 3000	Dissertation*		
→ <i>Start of Level 3</i>							
Year 5							
Semester 1							
Code	Modules	Hrs/Wk L P DS	Credits				
MGMT 3302	Strategic Business Planning and Management	2+1+1	4				
DISS 3000	Dissertation*		9				
<i>Finish level 3 →</i>							

Q. MODULE OUTLINE

MGMT 1102: Business Management

- An introduction to Management: management processes, levels of managers, roles and skills of managers, nature of managerial work,
- scope of management,
- Role of theory and history in management,
- Different management perspectives,
- Environmental context of management,
- Basic elements of planning and decision making,
- Leading process: Leadership, motivation, human resources management, group dynamics and team building.
- Control for business performance, Learning Organisation. Good Governance.

ECON 1101: Economics

- The Economic Problem: Scarcity and Choice,
- Theory of Demand and Supply,
- The Price System,
- Costs of Production,
- Market Structures,
- National income and economic growth,
- Inflation and Unemployment,
- Banking and Monetary Policies,
- Taxation and Fiscal policies,
- International Trade

QUAN 1202: Quantitative Techniques

- Elementary concepts in Mathematics;
- Fundamentals of Decision Theory and Decision Tree;
- Linear Programming Models: Graphical and Simplex Methods;
- Transportation and Assignment Models;
- Network Analysis; Queuing Theory; Markov Processes;
- Mathematics of Finance;
- Simulation Modelling

ACCF 1201: Principles of Finance

- Present Value Calculation,
- Time Value of Money, Annuities;
- IRR,
- Source of Finance: Short and Long term financing.
- Valuation of bonds and other securities,
- Definition of Financial risk,
- Risk and Return Analysis, Diversification Principles, Capital Asset Pricing Model, Stock Market, Forms of market efficiency

QUAN 1302: Introduction to Calculus and Linear Algebra

- Ways to represent a function,
- Exponential functions,
- Limit of a function, Continuity, Limits at infinity: horizontal asymptotes,
- The derivative as a function, Derivatives of Polynomials & Exponential functions,
- Product & Quotient rules, Derivatives of Trigonometric functions, Chain rule, Implicit differentiation,
- The Laplace transform, The inverse Laplace transform, Applications to differential equations,
- Fourier series and integrals, Vector spaces and subspaces,
- Linear transformations, Eigenvalues and eigenvectors, Inner products,
- The Gram-Schmidt process, Orthogonal transformations.

QUAN 1102: Statistics

- Descriptive Statistics;
- Probability Concepts;
- Random Variables;
- Probability Distributions: Binomial, Poisson and Normal;
- Estimation with Confidence Intervals;
- Hypothesis Testing; Chi-Square Tests; Analysis of Variance;
- Simple Regression and Correlation Analysis;
- Time Series Analysis.

ACCF 1117: Accounting for Finance

- Regulatory framework of Accounting: Legal and Professional framework for financial reporting
- International standard setting process
- The role of Accounting information
- Recording and Summarising transactions
- Accounting concepts and preparation of financial statements;
- Company Accounts and Basic Group Accounts
- Understanding Published Annual Reports; Cash flow statements and requirements of IAS 7 for single entities.
- Accounting Ratios
- Analysis and Interpretation; Cost Accounting system, Element of Costs, Classification and Costs behaviour
- Cost Allocation: Traditional approach and Activity based Costing. Costing Principles
- Contribution analysis to aid internal users in decision making

MGMT 1103: Business Communication

- The benefits of effective business communication;
- Internal and external communication;
- Verbal and non-verbal communication;
- The process of communication, communication barriers, intercultural communication;
- Teamwork, conflict and communication;
- Writing and presenting business documents, oral presentations, electronic communication;
- Preparing for interviews, customer care and communication

ACCF 1127 : Equity & Fixed Income

- Organisation & functioning of securities market; security market indexes;
- Efficient capital market;
- Market Efficiency & anomalies; industry and company analysis; price multiples;
- Features of debt securities risk associated with investing in bonds;
- Overview of bond sectors and instrument;
- understanding of yields spreads and Analysis and valuation;
- Yield measures;
- spot rates and forward rates.

ACCF 1302: Domestic and International Banking

- Introduction to the financial system;
- Financial intermediation; Retail and Wholesale banking;
- International banking
- The foreign exchange market; Euro markets and Eurocurrency banking; Euro-securities markets; Risks in Banking.
- Banking regulations; The development of banking systems.

ACCF 1202: Introduction to International Finance

- International trade and its financing;
- FOREX market;
- Interest rate parity and Purchasing power parity;
- Spatial and Triangular arbitrage.
- Spot and forward rate; Balance of Payment;
- Relationship between exchange and money market.
- Exchange rate determination with fixed prices;
- Exchange rate determination with flexible and sticky prices.
- Monetary Union;
- Introduction to Forward and Futures market.
- Introduction to Options and Swaps.

ACCF2305: Offshore Practice and Administration

- Characteristics of an offshore centre,
- Offshore financial services: international, personal and corporate clients,
- Company Administrative trusteeship investment ,Offshore pensions and unit trust ,Trustee business;
- Offshore business and company management;
- Offshore investment management.
- Double Taxation agreement;
- Anti money laundering and procedures

ACCF 2304: Financial Services and Corporate Law

- The banker-customer relationship and the rights and duties of each party;
- Types of customer, such as individuals, joint accounts, minors, executor and trustees, partnerships and limited companies ;
- Legal principles affecting lending; Cheques and payment systems;
- The law relating to cheques and other payment systems; Insolvency and security;
- The Banking Act; Financial Services Development Act; The Company's Act;
- Incorporation, constitution, directors' duties;
- Minority protection,
- Winding up of Companies

QUAN 2303: Investment Mathematics

- Investment valuation,
- Capital gains tax, Real returns,
- Index-linked bonds, Yield curves,
- Spot and forward interest rates,
- Future contracts,
- Stochastic interest rate models,
- Immunization

ECON 2501: Introductory Econometrics.

- What is econometrics? Methodology of econometrics
- Types of Econometrics
- Single equation regression model
- Two Variable regression analysis
- Classical Normal Linear regression Model
- Two Variable Regression, interval estimation and Hypothesis testing
- Multiple regression Analysis; estimation and inference
- Dummy Variables
- Multicollinearity and Autoregression

ACCF 2118: Management Accounting for Decision Making

- Role of Accounting information in decision making process;
- Cost Allocation and Routine decision making using Cost Volume Profit analysis; multi-product situations and margin of safety;
- Budgeting and Budgetary Control;
- Standard Costing and Variance analysis; Relevant Cost analysis: Relevant and Irrelevant Costs.
- Marginal Costing in the management decision process; Limiting Factors and the application of linear programming;
- External pricing strategies and decisions: cost-based, market-based, special orders. Qualitative factors in decision making.
- Uncertainty and decision making Cost Management:
- Life Cycle Costing; Target Costing; Kaizen Costing; Activity Based Management;
- Cost Management and the Value Chain; Benchmarking

ACCF 2306: OPTIONS AND DERIVATIVES I

- The main types of derivatives namely forward, futures, options and swaps
- application and pricing in risk management,
- introduction to derivatives markets,
- applications of derivatives,
- concept of arbitrage,
- forwards, forward options and forward swaps, pricing of forwards, future markets,
- uses in investment and hedging,
- interest rate futures contracts,
- marking to market and margin requirements, pricing futures contract.

ACCF 2204: Corporate Finance

- Shareholder's wealth;
- Project Evaluation, Valuation of financial instruments;
- Risk and Return – the CAPM and Arbitrage Pricing Theory;
- Derivative assets;
- Efficient markets- theory and empirical evidence; Capital structure;
- MM theory,
- agency costs theory and Signaling theory;
- Dividend theory, Dividend Valuation Model; Mergers and acquisitions

QUAN 2415: Research and Statistical Methods

- Introduction to Research Methods
- Formulating the research proposal
- Literature Review
- Planning the Research Process,
- Approach & Research Strategy :
- Research Ethics
- Writing and presentation of report.
- Application of Statistical Methods: Selecting Samples Collecting Data Hypothesis testing; Classical Linear Regression Model; Single Equation Regression Model-Estimation and Inference,
- Application using softwares

ACCF 2128: Corporate Governance and Financial Reporting

- Introduction to ethics and Governance:
- Managing Business Partners, Society & business,
- Corporate Governance,
- Ethical Decision making,
- Globalisation and Ethical standards,
- Corporate Scandals and Best practices
- Financial statement Analysis
- Financial Reporting Mechanics
- Financial reporting Standards

ACCF 2129: Risk Based Auditing

- Management of fraud and audit risk
- Engagement planning
- Inherent risk evaluation
- Risk assessment and internal control evaluation
- Employee fraud and audit of cash
- Application of risk-based auditing in:
 - Revenue and expenditure cycle
 - Acquisition and expenditure cycle
 - Finance and investment cycle

ECON 3502: Financial Econometrics

- Predictability of asset returns
- Forecasting Volatility
- Market microstructure
- Event-study analysis
- Derivative pricing
- Extreme Values and VAR
- Asset Allocation
- Fixed-income securities
- Term-structure models
- Nonlinearities in financial markets

ACCF 3307: OPTIONS AND DERIVATIVES II

- Bond futures and stock index futures,
- speculating and hedging with stock index futures and futures price parity relations,
- the options market, margins and commissions, option pay-offs and option strategies, the swap market,
- rationales for swaps, comparative advantage, pricing swaps, swap portfolios, types of swaps, currency swaps, commodity swaps, interest rate swaps.

ECON 3601: International Business environment

- Global business environment,
- the global manager, globalisation,
- culture in business, politics and law in business,
- economic systems and development, international trade and finance,
- business-government trade relations,
- foreign direct investment,
- regional economic integration, planning and organising international operations,
- analysing international opportunities, hiring and managing employees, international staffing policy.

ACCF 2227: Risk Management and Investment

- Risk management as a process,
- Risk governance,
- Identifying risk, measuring risk, managing risk,
- Hedging with futures or forward currency contracts, insuring and hedging with options, other methods for managing currency exposures,
- Strategic & tactical currency management, risk management applications of derivatives,
- Risk management application of Option Strategies, Risk management applications of swap strategies.

QUAN 3304: Financial Engineering

- Curvature Restrictions and State-Price Densities,
- Introduction to Dynamic Arbitrage,
- Binomial Model:
- Implementation and Extensions, Options in Compensation Contracts,
- The Black-Scholes-Merton Model,
- Hedging with Options, Extending the Black-Scholes Formula,
- Application of Option-to-Exchange, Structural Models of Credit Risk, Application of Structural Models,
- Single Name Credit Derivatives,
- Financial Engineering and the Subprime Crisis. How derivatives are used to manage corporate financial risks, specifically the control of equity, interest rate, and commodity price exposures. The applications are drawn from a variety of different industries and the instruments studied are both domestic and global in nature.

ACCF 3309: Security Analysis and Portfolio Management

- Types of security and security markets, including insurance, investments and pensions;
- Investment portfolio theory and analysis, including trading of securities in world markets.
- Investment theory, security, market analysis and efficiency,
- Practical investment considerations and investment by trustees;
- Funds management: Asset Allocation strategies(active and passive approach),Aspects of portfolio building and monitoring, Currency management,Techniques of evaluation of the performance of portfolios,Management of bonds portfolios,Regulation of fund management companies.

MGMT 3302: Strategic Business Planning and Management

- Objectives and Corporate Governance;Aims and Objectives of an Organisation and its Impact on Business Planning;
- Environmental Issues and their Impact in Corporate Governance;Strategy Formulation;
- Strategic Planning Process and its link with Investment Decisions;
- Risk Analysis;Investment Decisions;Decision Making Techniques;
- Expansion Strategies;
- Corporate Reorganisation;
- Treasury Mangement and Financial Forecasting;
- Global Economic Environment;
- Global Financial Management;
- Ethical Considerations.

DISS 3000: Dissertation

- A 10,000-12,000 words dissertation will have to be submitted at the end of the semester.
- The work submitted should conform to the Undergraduate Dissertation Guidelines.