Master of Commerce in Risk Management of Financial Markets
Degree Overview

Financial risk management is a relatively new quantitative discipline, the development of which began during the 1970s with the introduction of the first Basel Accord between the G10 countries. Since then, the Basel Committee on Banking Supervision issued the second and third versions of these Accords, essentially a set of recommendations for regulations in the banking industry. Analogous to these recommendations for the banking industry are the Solvency directives for the insurance industry set forth by the European Union. All in all, over the past 40 years, financial institutions have begun to understand the risk they take, and substantial progress has been made in the field of financial risk management. The quantitative and mathematical nature of risk management has come to the fore and has manifested in the form of technically rigorous prudential regulations that inform capital adequacy requirements.

Understanding the multitude of risks that constitute financial risk is the first step toward managing these risks. Despite the progress over the past 40 years, there is still a long way to go before financial institutions completely comprehend all their risk exposures. For a long time, the mathematical nature of financial risk management was doubted, primarily due to the older discipline of asset management. Traditionally, asset managers were restricted to investing in primitive securities such as cash equities and bonds, which are relatively simple financial instruments. Therefore, rigorous mathematical analysis of financial risks was not deemed necessary. The roles of equity, bond or financial analyst associated with asset management were therefore somewhat of a misnomer as little or no mathematical analysis was required. The lack of barriers to entry, such as stringent globally driven regulations and risk-based capital requirements, were also contributing factors. With risk ultimately being borne by investors, the role of the asset manager is primarily to manage and describe these risks accurately. Failure to do so results in legal action, which is a far weaker threat than the global regulatory implications imposed on banks – and therefore hindered the evolution of best practice in risk management historically.

The escalating sophistication in financial markets, e.g. the growth in the derivatives market and the innovations in retail and wholesale lending and banking, has spurred on the development of financial market regulation and, along with it the practice of risk management. Moreover, in our modern economies, market prices balance the supply and demand of most goods and services that fulfil our needs and desires. We can hardly make a decision, such as buying a house or saving for a later day, without taking some financial risks. Nowadays, financial firms, be they banking, insurance or asset management, manage these risks on a grand scale, with capital and derivative markets offering endless ways to transfer these risks among economic agents.

Risk management in banking seems to have evolved quicker than in the insurance and asset management sectors, with the availability of market data and the incentive to reduce regulatory capital serving as the primary catalyst. However, continually evolving markets and regulations have resulted in a new paradigm of technical and mathematical sophistication across the industry. At present, there is a high demand for properly qualified financial risk managers, but a lack of academic interventions to satisfy this need. This degree, therefore, represents the first step toward establishing a qualification that professionalises the risk management industry.

With this degree, graduates will master the technical aspects that lay the foundation for modern financial risk management. A qualified risk manager should master advanced concepts in calculus, linear algebra, probability, statistics and econometrics. Graduates will also be astute students of the markets, familiar with the technical and practical characteristics of the vast array of modern financial instruments and market mechanisms. Graduates will also be well versed in accounting, regulations and the key pieces of legislation that govern the global and South African financial services industry. With financial risk management fulfilling an integral societal need and facilitating solutions in an ever-changing economic environment while adhering to a special code of conduct, this degree will contribute the necessary academic rigour and discipline to a flourishing profession.

The requirements to gain entry to this degree are:
- A relevant Honours degree, 4-year undergraduate degree, an Engineering degree from any sub-discipline, or an appropriate alternative.
- Mathematics at 1st year level – candidates who do not meet this requirement must complete a 1st year Mathematics (Major) course or (at UCT) Mathematics 1010 and Mathematics 1012.
- Economics at 1st year level – candidates who do not meet this requirement must complete a 1st year Economics (Major) course or (at UCT) Microeconomics and Macroeconomics.
- Statistics at 1st year level – candidates who do not meet this requirement must complete a 1st year (Mathematical) Statistics course or (at UCT) Introductory Statistics.

Prospective students fall within two broad categories:

- Those who have been working either in the financial services profession (or in another profession but would like to change career) during which time they will have gained some practical knowledge. This degree will equip such students with the necessary advanced level of competencies to establish a career in financial risk management.
- Those with a background in finance and/or mathematics, such as a 4-year university degree in a relevant financial and/or mathematical discipline. These students will be introduced to practical financial concepts through mathematical applications. They will identify which aspects of mathematics are relevant to finance, learn advanced mathematical financial analysis and be able to apply these skills to particular problems in financial risk management, thereby preparing them for a potential career in this particular profession.

This degree will also afford exemplary graduates the opportunity to further their academic careers in this regard by enabling the enrollment for a PhD.

Risk Management in Financial Services

In order to understand the role of risk management in financial services, it is useful to have a broad overview of the organisational structure of a fairly generic financial services corporation/institution. Below is a basic organisational structure diagram of a publicly owned financial services institution (of course, the case of a privately owned entity would be similar), along with connectors amongst the key component or constituent departments representing various functions and responsibilities.
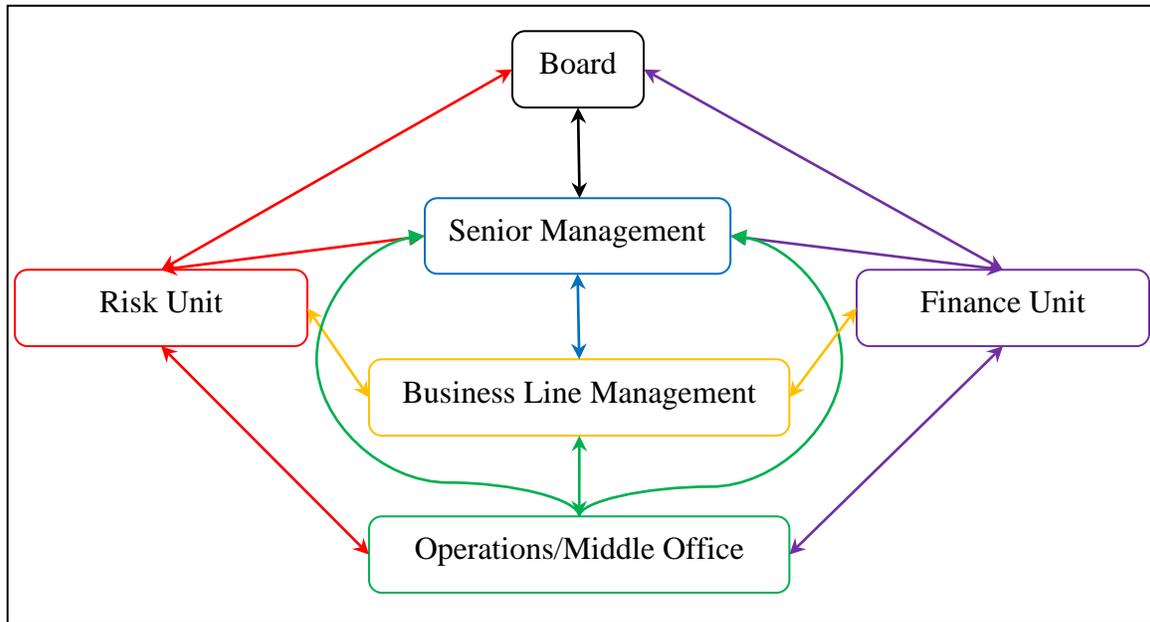
In summary, these are the functional definitions of each of the components/departments represented above:

Board

- Defines and ratifies business strategy along with associated risk appetite.
- Ratifies key policies and procedures (including risk management).
- Ensures appropriate infrastructure is in place to support business goals.
- Establishes audit committee, which ensures adherence to all governance.
- Establishes risk committee, which ensures adherence to risk appetite.

Senior Management

- Implements business strategy by developing plans and establishing targets.
- Approves plans, targets and risk appetite for constituent business lines.
- Establishes lower-level policies in accordance with those ratified by the board.
- Matrix management of business development, risk and valuation committees.
- Monitors compliance with risk and other performance guidelines.
- Manages performance of constituent business lines.

Business Line Management

- Manages business activities (e.g. treasury/trading operations, insurance sales/product development, fund management etc.) that generate profitability and thereby risk exposures.
- Responsible for aligning risk exposures with profitability expectations, i.e. risk/reward trade-offs within senior management's prescribed guidelines.
- Manages all aspects of business activity and risk exposures in accordance with internal and external policies/procedures/limits/guidelines.
- Ensures timely, accurate and complete capturing of business activity (e.g. the recording of trades, new insurance policies, inflows or outflows of funds, etc.).
- Ensures detailed explanation of profitability, justification thereof and sign-off.

Operations/Middle Office

- Records business activity (e.g. booking of trades) and ensures reconciliation of transactions internally and externally.
- Executes all settlement transactions pertaining to business activity.
- Assists the finance unit with the daily preparation of profitability reports.
- Assists the risk unit with the daily preparation of risk reports.
- Assists with reconciling transactions as well as independently assessing, evaluating or valuing transactions, in conjunction with the risk unit.

Finance Unit

- Develops valuation and finance policies.
- Ensures integrity of profitability reports and other financial statements.
- In conjunction with the risk unit, supports all levels of the firm in understanding profitability (i.e. the decomposition of profit/loss across risk exposures).
- Supports all levels of the firm in understanding accounting, audit and other finance issues.
- Supports the business planning process.

Risk Unit

- Develops detailed risk policies and guidelines that implement risk tolerances defined by board and senior management.
- Specifies and develops detailed risk reports.
- Ensures integrity of risk reporting.

- Supports all levels of the firm in understanding and analyzing risk, along with an allied understanding of profitability decomposed across risk exposures.
- Ensures adherence to risk limits, as ratified by board and senior management, and provides support and supervision in management thereof.
- Supports risk committee process, by providing board and senior management with independent view on risk.
- Together with finance unit and operations, evaluates and checks models, systems, etc. – basically all processes related to evaluating, measuring and reporting risk exposures and profitability measures.

Key Requirements of a Financial Risk Manager

Financial risk management requires the seamless integration and amalgamation of technical, economic, accounting and regulatory knowledge within a financial services context. The key requirements of a financial risk manager may be summarized as follows:

Business – Practical, commercial and fundamental knowledge of the business.
- Understanding all of the commercial facets of the business – all of the strategies employed, all sources of profitability and thereby all associated risk exposures.
- A core understanding of economics, finance and financial markets – a risk manager should be able to supplement technical and descriptive reports with succinct market commentary and links between potential risks and market fundamentals.
- A core understanding of all financial instruments – a risk manager should be able to explain and attribute risk and profitability relative to relevant market variables affecting the value and performance of relevant financial assets.
- Apart from just analysing, measuring, managing and reporting risk, a risk manager also serves as a business enabler – being able to execute their functions generally and effectively opens the opportunity to new business ventures.

Technical - Technical knowledge of business-related markets, securities and products.
- An advanced understanding of the business contexts, strategies, relevant markets and products from a technical perspective, i.e. understanding the finance and economics in conjunction with the interaction and application of mathematics, statistics and computing.
- For a risk manager in a market risk context, a thorough understanding of mathematical issues related to the trading, pricing and hedging of all traded and non-traded instruments.
- For a risk manager in a credit risk context, a thorough understanding of mathematical issues related to the modelling of exposures on all instruments that bear credit risk.
- A thorough understanding of computational and mathematical issues relating to the calculation, estimation or calibration of models, methodologies and techniques used to measure or quantify risk.
- An in-depth understanding of the systems and processes that are involved in each business context – this is not only critical from an operational risk perspective, but also critical for the effective management of other risk types as well.
- A risk manager should, in general, be adequately computationally adept – in particular, a strong understanding of data vendors, Excel, VBA, Matlab, SQL and the interactions between these systems/programs and internal/external systems.

Governance – Compliance with all internal and external regulations, policies and procedures, and the maintenance of ethical and professional conduct.
- A thorough and complete understanding of the rules and regulations that govern the markets within which the business operates.
- A thorough and complete understanding of the accounting, legal, legislative and regulatory frameworks that are relevant and govern the respective financial services firm in question.
- A risk manager should ensure adherence to a strong code of ethics and corporate governance as prescribed by best practice.
- Maintain effective working relationships with senior management, external regulators, supporting areas, colleagues, internal and external clients.

Curriculum

Course	Module	Credits	Outline
RM Quantitative Modelling **45 HEQF Credits**	RM Quantitative Methods	15	Calculus & Linear Algebra Probability & Statistics Numerical Methods Financial Economic Theory
	RM Financial Instruments	15	Financial Markets Derivatives, Exotics & Volatility Valuation & Risk Decomposition
	RM Computing Skills	15	Excel & Visual Basic for Applications Matlab Structured Query Language (SQL) Exposure to Data & Systems Vendors
RM Markets **45 HEQF Credits**	RM Econometrics	15	Time Series Models Factor Models Volatility & Correlation Forecasting & Model Evaluation
	RM Market Risk Models	15	Risk Measures Parametric, Historical & Monte Carlo VaR Derivative Portfolios & Profit Allocation Scenario Analysis & Stress Testing Model Risk
	RM Credit Risk Models	15	Risk Measures Retail & Corporate Credit RM Credit VaR & Potential Future Exposures Scenario Analysis & Stress Testing Ratings & Equity Based Models Credit Derivatives & CVA
RM Governance **30 HEQF Credits**	RM Corporate Governance	12.5	Principles of Corporate Governance Governance for Financial Institutions IT Risk & Risk Governance Hedge Fund Activism, Compliance & Ethics Corporate Governance & the Financial Crisis
	RM Regulations	12.5	Financial Market Rules Market Conduct & Prudential Regulation Operational Risk Capital Allocation and Risk Budgeting Accounting Standards and Financial Statement Analysis
	RM Current Issues	5	Intensive External Expert-Driven Content on Pertinent Issues in the Field of Risk Management
RM Research **60 HEQF Credits**	RM Quantitative Modelling	20	Empirical Data-Based Research Project
	RM Markets	20	Theoretical Model-Based Research Project
	RM Governance	20	Case Study Research Project

Course Overview

RM Quantitative Modelling

The primary objective of this course is to equip students with the necessary technical skills for financial risk management. The required technical skills span across the following core areas, viz. mathematics, statistics, econometrics and computing. Furthermore, since finance, in general, relates to the study of the behavior of agents operating in financial markets, the course intends to inculcate the application of technical skills to model complex economic concepts and enhance the understanding thereof. From a financial markets perspective, for example, since the prices of liquid financial instruments are determined by demand and supply, they do not obey precise rules of behavior with well established analytic solutions. Consequently, we often have to resort to numerical techniques to solve financial problems. With the unpredictability of human behavior driving economic phenomena, the study of economics is far more complex than the study of repetitive phenomena in the physical sciences, for example. As such, this course will provide a thorough overview of the development of financial economic theory, covering fundamental models and concepts such as utility theory, the capital asset pricing model, arbitrage pricing theory. The development and evolution of such models, their assumptions and mathematical underpinnings form a vital pillar of any financial professional's foundation of knowledge.

This course constitutes three core modules that cover advanced technical concepts for finance, viz. Quantitative Methods, Financial Instruments and Computing Skills. The contents of each of these modules are summarized in the module outlines below.

1. Quantitative Methods

This module covers the topics of calculus, linear algebra, probability, statistics and numerical methods within the context of finance and economics, culminating in the analysis of the development and advancements of canonical concepts, theories and models in financial economics. All mathematical concepts will be presented both theoretically and practically, with appropriate applications in finance. In more detail, this module is composed of the following sections:

- Calculus & Linear Algebra – Functions of one and severable variables; differentiation, integration; optimization; Taylor expansions; matrix algebra; eigenvectors; eigenvalues and matrix decompositions.
- Probability & Statistics – Frequency approach; Bayesian approach; probability laws; random variables; probability density and cumulative distribution functions; univariate and multivariate distributions; statistical inference; maximum likelihood estimation and multiple linear regression.
- Numerical Methods – Interpolation; extrapolation; root finding iteration schemes; optimization; finite difference approximations; binomial lattices and Monte Carlo simulation.
- Financial Economic Theory – Utility theory; risk and asset allocation (Markowitz); asset pricing theory (CAPM, APT).

2. Financial Instruments

This module provides a rigorous and technical presentation of global financial markets along with the pricing, trading and hedging of the instruments associated with each of the respective markets. In particular, the module shall transition from general and specific nuances related to primitive assets, which form the basis of trade in each of the respective markets, to complex non-linear contingent assets. Allied to this is the intension for the student to gain exposure to all of the main asset classes, viz. interest rates, credit, foreign exchange, commodities and equities.

A large component of the course is the coverage of contingent securities or financial derivatives. The pricing of these instruments is highly technical with a high degree of complexity – as such it is not the intention of this module to present the derivation of the pricing functions of these products. This would require a thorough account of stochastic calculus and arbitrage pricing theory. Rather, the motive behind this module is to introduce the modeling frameworks and assumptions that lead to the derived pricing functions, in such a way, that the student will be able to debate, analyse and interrogate the application of such methodologies in real-world environments.

Lastly, this module examines techniques for dealing with portfolios of financial instruments – decomposition and analysis of risk exposures across instruments from different asset classes in a consolidated and consistent fashion. In more detail, this module constitutes the following:

- Financial Markets – Money markets; fixed-income markets; credit markets; foreign exchange; equity markets; commodity markets.
- Derivatives, Exotics & Volatility – Forwards; futures; swaps; options; popular exotic options; implied, local, stochastic volatility; trading and hedging volatility.
- Valuation & Risk Decomposition – Risk factors and sensitivities; cash flow mapping; mapping non-linear portfolios; decomposing risk and profitability.

3. Computing Skills

The computing skills module offers student's exposure to Microsoft Excel, Visual Basic for Applications, SQL Server and Matlab. The objective of this module is to equip student's with the necessary skills to convert mathematical methods into Excel, Visual Basic and Matlab routines. Furthermore, with almost all practical financial risk management problems being highly data and computationally intensive, it's imperative that financial risk managers are capable of seamlessly integrating database platforms like SQL with strong computational platforms like Excel and Matlab.

Related to the analysis of financial risk management problems is accessibility to data. This course shall also provide students with exposure to popular financial market data vendors, such as Bloomberg, Thomson Reuters, INET BFA. Tutorials, assignments and research projects will require the students to integrate the use of data vendors in order to answer the questions or broader research problems that have been posed. Where possible, contingent on access to the relevant vendors along with the relevant problems posed, students shall also gain access to popular trading and risk management systems, for e.g. the SunGard or Algorithmics suite of financial systems and the Murex suite of trading systems. All pedagogical interventions shall be highly practical in nature, encompassing the use of the following systems:

- Microsoft Excel & Visual Basic for Applications.
- Matlab – Spreadsheet Link EX and the Database and Financial Toolboxes.
- Access & Structured Query Language (SQL).
- Exposure to Data & Systems Vendors – System vendors if viable.

RM Markets

The objectives of this course are three-fold – firstly, the intention is to provide the student with a comprehensive understanding of the financial services sector, the three main subsectors (insurance, banking and asset management), the business models, as well as the general and specific risks associated with each. Secondly, the course aims to cover the financial markets within which these businesses operate, along with the vast array of financial instruments that are both tradable and untradeable, and the multifaceted diversity of financial risks that these instruments bear. Third, and finally, the course will focus on two risk types that are critical to all facets of the financial services industry, viz. market and credit risk. Apart from delving into theories, concepts, techniques, models and measures relating to these two key risk areas, this course will also provide a holistic view of risk types across the industry, focusing on systematic and idiosyncratic risks affecting the three primary subsectors. Moreover, this course enables the student to amalgamate the technical knowledge of the "Quantitative Modelling" course with the practicalities of the financial services business environment, in order to measure, analyse and thereby manage risk.

This course constitutes three core modules that cover advanced topics on financial markets, instruments and risk management methodologies, viz. Econometrics, Market Risk Models and Credit Risk Models. The contents of each of these modules are summarized in the module outlines below.

1. Econometrics

The objective of this module is to systematically cover those econometric techniques that are deemed common and critical to various applications in finance, or more specifically financial risk management. Econometric techniques require a combination of mathematical, statistical and numerical methods with the focus being application to financial time series data in order to mathematically describe economic behavior and make various inferences thereof. All econometric concepts will be presented both theoretically and practically, with appropriate applications in finance. In more detail, this module is composed of the following sections:

- Time Series Models – Stationary processes; non-stationary processes (deterministic/stochastic trends, random walks, unit root tests); cointegration and error correction models.
- Factor Models – Single and multi-factor models; general factor analysis; principal components analysis (PCA).
- Volatility and Correlation – Standard methods for variance/volatility and covariance/correlation; exponentially weighted moving averages, GARCH models, Copulas.

- Forecasting and Model Evaluation – Model selection; goodness of fit; forecasting/prediction; simulation; statistical inference (confidence intervals, coverage tests, parameter estimate hypothesis tests) and back-testing.

2. Market Risk Models

The objective of this module is to introduce the concept of market risk as it naturally manifests in any business context involving financial markets, and their associated tradable instruments. Moreover, the aim is to clearly present the commonalities and differences between market risk as it applies to the three major financial subsectors, viz. banking, insurance and asset management. In order to manage market risk, one needs to be able to quantitatively measure these risks and have a systematic, consistent and consolidated framework to analyse these risks. This module will present the technicalities and economic intuition behind the key risk measures that are applied to quantify market risk. Building upon simple statistical risk measures are measures which require models – the most popular of these being Value-at-Risk models from a market risk perspective. These models facilitate the computation of the Value-at-Risk measure, which is fundamental to market risk management – also a key measure from a regulatory perspective.

The assessment of market risk on non-linear assets, or derivatives with non-linear payoffs, on an individual and a portfolio basis constitutes a large component of this module – with special emphasis being placed on issues of risk measurement, correlation, hedging and diversification. Pivotal to the assessment of market risk, is the understanding of sources of profitability – naturally, profitability is driven by the changes in the levels of risk factors that define the value of financial instruments. Decomposition of profitability across correlated risk drivers is critical for the comprehension of risk exposures, as well as for the testing of the efficacy or risk models.

Given the deficiencies in risk models and their associated risk measures, the use of scenario analysis and stress testing has become vital tools for internal financial risk management, as well as regulatory control. As such, this module will provide various model-dependent and model-independent frameworks to consistently implement scenario and stress tests for internal and external regulatory purposes. In order to complete the knowledge base on risk models and their deficiencies, the final component of the module will provide a set of methods to quantify and assess the risk, in risk models.

While this module deals primarily with market risks, there will also be general aspects of liquidity risk and asset-liability management, as these topics are difficult to untangle from general market risks, particularly in the banking and insurance contexts.

- Risk Measures – Downside and quantile risk metrics; VaR; coherent risk measures.
- Parametric, Historical & Monte Carlo VaR – Parametric linear VaR; historical simulation VaR; Monte Carlo VaR.
- Derivative Portfolios, Profit Allocation & Back-Testing – Analytic VaR approximations; historical VaR; Monte Carlo VaR; profit decomposition and VaR back-testing.
- Scenario Analysis & Stress Testing – Risk factor-based scenarios; scenario VaR & other risk measures; regulatory stress testing; coherent frameworks for stress testing.
- Model Risk – Sources of risk; estimation risk; model validation.

3. Credit Risk Models

The objective of this module is to introduce the concept of credit risk as it applies and manifests in banking, insurance and asset management; at the same time clearly distinguishing credit risk from market risk. The student will learn how credit risk arises in all financial transactions where the obligor is susceptible to potential financial default with regard to any of the contractual terms. In addition, the course intends to focus on the fundamental distinction between credit risk management in the retail- and corporate-centric facets of the financial service industry.

In order to manage credit risk, one needs to be able to quantitatively measure these risks and have a systematic, consistent and consolidated framework to analyse these risks. This module will present the technicalities and economic intuition behind the key risk measures that are applied to quantify credit risk. To this end, credit risk modelling will feature prominently, from the perspective of techniques required to quantify credit risk exposures. In particular, there will be a strong focus on the quantification of probabilities of-, exposures and losses given-default, the generation of loss distributions and methodologies of dealing with correlated credit risk exposures and defaults. Further, the student will gain exposure to credit risk modelling from three different perspectives, viz. ratings based, equity based and risk-neutral methodologies.

Building upon simple mathematical and statistical risk measures are measures which require models – in this regard, various aspects of Credit Value-at-Risk models will be covered, which include the notions of loss distributions and potential future exposures. These measures are critical for internal and external risk management, with Value-at-Risk measures being an integral metric for regulatory capital.

Given the deficiencies in risk models and their associated risk measures, the use of scenario analysis and stress testing has become vital tools for internal financial risk management, as well as regulatory control. As such, this module will provide various model-dependent and model-independent frameworks to consistently implement scenario and stress tests for internal and external regulatory purposes.

Finally, the module will cover credit derivatives – the pricing, trading and hedging thereof, along with their various roles in financial markets and the broader financial services sector. Building on from credit derivatives are more general credit-contingent market risks, which arise through hybrid credit products. Finally, aspects of credit valuation adjustments (CVA) will be covered and their various ramifications from a technical, economic and regulatory perspective

- Risk Measures – Expected loss; default probabilities; loss given default; unexpected loss
- Retail & Corporate Credit Risk Management
- Ratings, Equity Based and Risk-Neutral Models – Correlated defaults (Bernoulli, Poisson, Moody's KMV, RiskMetrics, CreditRisk$^+$); factor/asset value models; default probability term structures.
- Credit VaR & Potential Future Exposures
- Scenario Analysis & Stress Testing – Risk factor-based scenarios; scenario risk measures; regulatory stress testing; coherent frameworks for stress testing.
- Credit Derivatives, Credit-Contingent Market Risk & CVA

RM Governance

The "Governance" course is an integral component of the degree as it outlays the ethical, accounting, legislative and regulatory frameworks that govern economic activities within the financial services sector. The importance of financial professionals having a holistic and consistent quantitative, qualitative, behavioural and legislative understanding of the financial landscape is critical for the sustainability and functional stability of the economy as a whole; the recent financial credit crises bearing testament to this fact. As such, the primary objective of this course is to complete the technical, economic and market knowledge base, which has been built by the "Quantitative Modelling" and "Market" courses, with the relevant ethical, accounting and governance structures. While this course is predominantly theory driven, there are aspects that are technical in nature, for instance the economic and mathematical underpinnings of regulatory capital and the associated risk budgeting implications thereof. Some of the softer aspects of the course relating to ethics, professional conduct and communication as well as general corporate governance will be presented in a practical manner so as to contextualize the necessity and significance thereof within the financial risk management profession. Moreover, given the continual evolution in the global financial economy, in the wake of the recent financial credit crises, this course will also provide the opportunity for industry experts to define and present and examine a component of the course. This ensures that the course content, in general, remains relevant and commensurate with critical changes in the field.

This course constitutes three core modules that cover advanced topics on ethics, accounting, regulatory and governance frameworks, viz. Corporate Governance, Regulations and Current Issues. The contents of each of these modules are summarized in the module outlines below.

1. Corporate Governance

This module is directed toward issues relating to general corporate governance, including aspects of ethics, professional conduct and communication. As these topics contribute to the development of the so-called "softer skills" of the student, i.e. those personal attributes that enhance a student's ability to interact within different formal and informal environments; this component of the course will have a strong practical pedagogical slant. The course content will primarily constitute practical interventions (such as case studies and tutorials) with theoretical interventions to a lesser extent. Allied to these softer skills are issues relating to project and time management, which shall also be dealt with in a similar fashion.

The primary objective of this course is to create an understanding of the ethical, accounting, legislative and regulatory frameworks that govern economic activities within the financial services sector. It will complete the technical, economic and market knowledge base built by the Risk Management Quantitative Modelling and Risk Management Markets modules.

The course primarily focuses on the banking and insurance sectors. Students are required to understand the functioning of financial institutions and critically analyse the framework for effective corporate governance. Students will be assigned readings and cases associated with each lecture and will be required to prepare their discussions and analysis in advance.

All in all, this module is critical for a financial risk manager from a vocational perspective, as the range of topics (or "softer skills") covered is pivotal to the effective fulfillment of such a role in

practice. Moreover, with there being a high degree of social responsibility attached to the effective functioning of the financial services sector, it is imperative that a financial risk manager understand the implications and interactions of ethical behavior with the complete spectrum of business contexts. In more detail, this module constitutes the following:

- Principles of Corporate Governance
- Corporate Governance in South Africa for Financial Institutions
- IT Risk, Risk Management & Risk Governance
- Hedge Fund Activism, Market Compliance & Ethics
- Corporate Governance & the Financial Crisis

2. Regulations

Recent financial crises may be attributed to the intrinsic instability in the financial system due to the incoherence and lack of consistency and unification in the principles of accounting, regulation and risk management as applied to financial services institutions. With each of these key disciplines having evolved almost in isolation to the other two disciplines, the primary objective of this course and this module, in particular, is to ensure that students understand the critical interrelations and dependencies between these disciplines.

As such, the purpose of this module is basically four-fold – (i) to cover financial market rules along with market conduct and prudential legislature and regulations; (ii) to cover aspects of operational risk and its interconnectedness with regulations; (iii) to understand capital allocation and risk budgeting within the context of financial objectives, in conjunction with regulatory constraints; and (iv) to understand the relevant accounting standards that impact the financial services sector and financial risk management in particular, along with the ability to analyse financial statements for the effective management of risk exposures. In more detail, this module constitutes the following:

- Financial Market Rules
- Market Conduct (Non-technical) & Prudential (Technical)
- Operational Risk
- Capital Allocation and Risk Budgeting
- Accounting Standards and Financial Statement Analysis

3. Current Issues

This module constitutes intensive external expert-driven content on pertinent issues in the field of financial risk management and finance, in general. There are ten seminars that are scheduled throughout the academic year. Considering that the state of finance and the financial system is in a state of continuous flux, following recent financial crises, this module enables industry members to influence the curriculum of the degree. This ensures that students are aware of fundamental changes from a technical, market or governance perspective. Depending on the nature of the content, the extent of the issues and therefore the blend between theoretical and practical aspects, the assessment of this component of the course will be flexible, but remain integrated with assessment of the course as a whole.

RM Research

The "Research" course is a compulsory component of the degree, the completion of which is a necessary requirement for a student to be awarded the degree. The research component represents the pinnacle of individual achievement within the degree. It is a sophisticated way for students to demonstrate their abilities and the levels of comprehension and understanding that they have achieved.

The conduct of research enables students to use a range of skills that have been developed throughout the degree, the skills of enterprise and initiative required for thorough investigation and examination into a chosen topic; the motivation and time management skills necessary to produce a substantive and organised piece of written work; and the ability to synthesise and integrate complex information. This opportunity has both tremendous advantages and significant dangers. The advantages are the depth to which the student can take her individual learning; the dangers are getting lost along the way. She must make full use of her research supervisor(s) if she is to maximise the advantages whilst minimising the dangers.

The 60 HEQF credit research course will be split into three research modules, or rather projects, in-line with the three constituent courses, as follows:

- Quantitative Modelling – Most likely an empirical data or theoretical model-based research project;
- Markets – Most likely an empirical data or theoretical model-based research project;
- Governance – Most likely a case study-based project.

All research topics will be related to prominent and pertinent problems in both academia and practice. The supervisory situation will depend on the particular topic or vice versa. Whether students have an internal or external supervisor, or whether the student has a co-supervisory setup, will determine the nature of the relationship - but in all cases the student is completely responsible for her work. It is up to the student to ensure that, for example, that she gets work to her supervisor as early as possible to allow sufficient time for feedback, comments and corrections. It is also the student's responsibility to ensure that her supervisor is kept abreast of developments throughout the research process, and approves of the general direction of her work along the way.