

The Department of Mathematics offers the following graduate programmes:

MSc Mathematics
MSc ERM
MPhil/PhD Mathematics (by research)

MSc are normally taught Master's degree and shall be awarded on the basis of examination by:

- i) written papers together with a research paper or project report or
- ii) as prescribed for specific degrees in Faculty regulations.

MPhil/ PhD is primarily research degrees and shall be awarded primarily on the basis of examination by thesis.

MSc Mathematics

Programme Objectives:

The objectives of the programme are to:

- Provide graduates with a comprehensive advanced knowledge of important areas of mathematics.
- Produce graduates with high level analytic and numerical skills required in a 21st century economy.
- Enable graduates to function effectively as teachers, at both the school and university levels.
- Furnish graduates with the necessary background for further study in Mathematics, and enhance their research capability.

Entry Requirements:

To be admitted to the MSc. programme a candidate should normally have a Bachelors, BSc (Mathematics), degree from a recognized

university with at least Lower Second Class Honours.

Candidates with different qualifications may be considered but will be required to pass qualifying courses, as prescribed by the department as follows:

MATH2410 A First Course in Linear algebra,
MATH2401 Elements of Mathematical Analysis,
and MATH3990 Metric Spaces & Topology (or equivalent).

Seminars :

MSc Programme : 1 one-hour seminar during the programme.

Duration of programme:

Part time: 2 years

Programme Structure:

The MSc Mathematics is currently offered as a part-time programme over two (2) years, and an indicative list of courses offered by the Department in the 2011/12 and 2012/13 academic years is given below.

Cost:

UGC fees applicable to the year of entry.

Core Courses

- Functional Analysis
- Theory of Integration
- General Topology
- Differential Equations: theory & applications
- Research Project

Electives

- Stochastic Processes
- Time Series Analysis & Forecasting
- Numerical Analysis
- Numerical Methods for Partial Differential Equations

Overview

Offered by the Mona School of Business in conjunction with the Department of Mathematics, Faculty of Science & Technology, The University of the West Indies. The MSc. ERM degree programme is designed to address the demand in the financial services and other industries for modern risk management skills. Risk professionals require a set of integrated skills in risk modelling and management of the risks associated with assets/liabilities of their business operations. The programme is designed to produce graduates with skills in risk techniques and practices who also understand the business contexts and thus are able to address complex risk issues. The programme will attract professionals seeking breadth in risk management. They will typically have backgrounds in a wide cross-section of industries such as the financial services (especially banking, insurance), consultancy, the non-financial sector as well as from the public sector. This is an important added value, which prepares the student for team work with members of diverse backgrounds.

The suite of courses will produce a cadre of unique, employable individuals, responsive to the contemporary risk management challenges facing enterprises in the world and in particular, the Caribbean Region.

The main aims of the **MSc-ERM** are to:

- Introduce the basic concepts and techniques of quantitative risk management across an enterprise, as well as the business context in which such risk management takes place.
- Provide a good grounding in risk management best practices.
- Identify and measure risks; to take actions to mitigate risks and exploit opportunities.
- Apply quantitative as well as qualitative approaches to risk management.

MSc ENTERPRISE RISK
MANAGEMENT (ERM)

- Familiarise students with computational techniques and risk management software.

Admission Criteria

Minimum GPA of 3.0 in a Bachelor's degree (or equivalent from an overseas institution) in a quantitative discipline.

Preference will be given to those applicants with 3 years relevant work experience.

Duration

24 months part-time (evenings)

Target Groups:

Risk Officers, Financial Officers, Actuaries, Risk Professionals, Risk Modellers, Asset Liability Management Practitioners, Equity Analysts and other Investment Professionals.

Tuition Fee (subject to change):

US\$15,200 [full programme cost; includes reading material]

Courses

- Computer Business Applications
- Statistical Methods
- Mathematics for ERM
- Risk Management in the Business Enterprise
- Stochastic Calculus
- Time Series Analysis
- Quantitative Analysis of Financial Data
- Risk Categories & Identification
- ERM Concept, Framework and Process
- Corporate Finance
- Financial Markets
- Credit Risk Management & Modelling
- ERM Governance
- Risk Management Optimization
- Ethical, Legal & Regulatory Frameworks for ERM
- ERM in the Global Business Environment
- Leading Issues in ERM - A Project-Based Approach.

MPhil and PhD Mathematics

Entry Requirements

MPhil Mathematics

Candidates should normally have either a BSc Mathematics degree from a recognized university with at least Upper Second Class Honours, or have successfully completed an MSc Mathematics from a recognized university.

PhD Mathematics

Candidates should normally have an MPhil Mathematics, or an MSc Mathematics with a research component that makes up at least 25% of the programme credits.

In each case Candidates should identify a supervisor and develop a research proposal as part of the application.

Areas of Research Specialisation

Stochastic Differential and Difference Equations and Applications, including stochastic modeling and numerical analysis.
 Modelling Physiological Fluid Flows
 Differential Equations and Applications, Theory of Operators;
 Mathematical Physics: General Relativity, Quantum Field Theory in curved spacetimes, Differential Geometry, Noncommutative geometry inspired solutions of Einstein field equations
 Numerical Methods
 Statistics

Minimum Duration of Programmes

MPhil Mathematics
 Full time: 2 years
 Part-time: 4 years

PhD Mathematics

Full time 3 years
 Part-time 6 years

Seminars MPhil and PhD students must deliver 1 seminar per semester

Cost:

UGC fees applicable to the year of entry.



**The University of the West Indies
 Mona Campus**

**DEPARTMENT OF
 MATHEMATICS**



**GRADUATE
BROCHURE
2013/14 ACADEMIC
YEAR**