

Master of Philosophy (by Coursework and Dissertation) specialising in Mathematical Finance [CM033FTX16]

Convener: A Backwell

Entrance requirements:

There are limited places on the degree and admission is based on merit. Applicants must have an Honours (or four-year equivalent) degree from one of the Faculties of Science, Commerce or Engineering. Applicants should be aware that this is predominantly a mathematical degree and preference will be given to candidates with a strong background in a mathematical science. Admission is at the discretion of the admissions committee and meeting the minimum requirements does not guarantee acceptance.

Once admitted, candidates must pass or gain credit for the preliminary courses to continue with the degree.

Programme outline:

The African Institute of Financial Markets and Risk Management in association with the Department of Finance and Tax offers an MPhil in Mathematical Finance by coursework and dissertation. The programme has been designed to accommodate students from a wide variety of backgrounds. This degree is mathematical in nature and requires a high level of skill in statistics and mathematics. The programme is intensive and challenging, and combines training in applied mathematical, statistical and computing skills with a solid understanding of financial markets and asset pricing theory. It consists of 2 preliminary courses that run 4 weeks prior to the start of the rest of the degree, 120 credits of coursework and a 60 credit minor dissertation. Graduates of this degree are well-equipped for careers in the most sophisticated areas of investment banking, asset management, risk management, or any career where a solid quantitative finance or financial engineering background is useful. They may also pursue doctoral research in quantitative finance.

Duration:

The degree is only offered full-time over one year; it begins in January and ends in January of the following year. With the approval of their supervisor, a student might be permitted to re-register for the dissertation in the year following coursework, but fees will be payable.

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Prescribed curriculum

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Course code	Course name	NQF Credits	HEQSF Level
Non-credit bearing preliminary courses			
STA5089Z	Basics of Mathematical Statistics (compulsory)	0	9
FTX5038Z	Mathematical Computing Skills (compulsory)	0	9
First Semester			
FTX5039F	Introduction to Finance and Derivatives (compulsory)	0	8
FTX5040F	South African Financial Markets (compulsory)	15	8
FTX5041F	Stochastic Calculus for Finance I (compulsory)	30	9
FTX5048F	Numerical Methods in Finance I (compulsory)	30	9
Second Semester			
FTX5049S	Stochastic Calculus for Finance II (compulsory)	15	9
FTX5050S	Numerical Methods in Finance II (compulsory)	15	9
FTX5051S	Risk Management of Financial Instruments	15	9
Research:			
FTX5052W	Dissertation (not exceeding ten thousand words)	60	9
Total:		180	

The objective of the courses STA5089Z, FTX5038Z and FTX5039F is to harmonize knowledge of the fundamental tools in statistics, computational mathematics and finance needed to follow the remainder of the programme. A full course (30 HEQSF credits) typically consists of 48 contact hours. However, the specific organisation of each course will be adapted according to the learning needs.

Assessment:

To qualify for the degree, the student must achieve the following:

Pass or gain credit for the pre-courses, STA5089Z and FTX5038Z, and the co-requisite course, FTX5039F.

Pass courses totalling (at least) 120 credits (including the compulsory courses).

Pass the dissertation, which carries an additional 60 credits.

Readmission rules:

Any candidate who fails any of the courses required for successful completion of the degree, during the first year of registration, will be allowed to repeat a maximum of two courses in the following academic year.

Courses may only be repeated once.

FTX5052W, STA5089Z, FTX5038Z and FTX5039F may not be repeated.

Distinction rules:

The degree will be awarded with distinction if the candidate obtains a weighted average mark of at least 75% for the coursework component of the degree, and a grade of "Distinction" for the dissertation.

Further specific administrative requirements:

In addition to completing the University application form, an applicant must submit academic transcripts and a Curriculum Vitae. Application for the following year must be made by 30 September.